



EPA User's Guide to Federal Accidental Release Databases

Prepared in coordination with the
National Response Team
by the
**Chemical Emergency Preparedness
and Prevention Office**

NRT



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ACRONYMS

ARIP	Accidental Release Information Program
ATSDR	Agency for Toxic Substances and Disease Registry
CAA	Clean Air Act
CDC	Center for Disease Control and Prevention
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOD	Department of Defense
DOS	Disk Operating System
DOT	Department of Transportation
EHS	Extremely Hazardous Substance
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ERNS	Emergency Response Notification System
FEMA	Federal Emergency Management Agency
FHMTL	Federal Hazardous Materials Transportation Law
FNM	Federal Notification Modules
FOIA	Freedom of Information Act
FWPCA	Federal Water Pollution Control Act
HLPAD	Hazardous Liquid Pipeline Accident Database
HMIRS *	Hazardous Materials Incident Reporting System
HMIS	Hazardous Materials Information System
HPSA	Hazardous Pipeline Safety Act
HSEES	Hazardous Substances Emergency Events Surveillance
IMIS	Integrated Management Information System
IRIS	Incident Reporting Information System
ISR	Incident Summary Report
NRC	National Response Center
NRT	National Response Team
NTIS	National Technical Information Service
OPS	Office of Pipeline Safety
OSC	On-Scene Coordinators
OSHA	Occupational Safety and Health Administration
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
RSPA	Research and Special Programs Administration
SARA	Superfund Amendments and Reauthorization Act of 1986
SAS	Statistical Analysis System
SNM	State Notification Modules
TELERNS	DOT Telephonic/EPA National ERNS Database
TSA	Transportation Safety Act
TSCA	Toxic Substances Control Act
USCG	United States Coast Guard

* HMIRS is part of the HMIS (as is HLPAD) and in all cases in this document HMIRS is the correct reference.

I. INTRODUCTION

Background

Although progress continues to be made in preventing accidental releases of hazardous chemicals, these releases remain a recurring problem. A broad range of groups, from industry and trade associations to federal, state, and local government agencies, environmental groups, and other concerned citizens, have a stake in learning more about these accidental releases -- where, when, and how they have occurred -- in order to determine why such releases occur and, consequently, how to prevent them in the future.

To meet this large demand for information about chemical releases, data have been collected by a number of different sources (both public and private) and on multiple levels (facility, parent company, association, local, state, regional, and national). In some cases, this collection of chemical release data has been voluntary; in many cases, however, federal laws (e.g., the Clean Air Act, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), etc.) require that chemical release information be reported to certain governmental authorities. For example, the federal government currently collects accidental release information based on certain criteria, including characterization of the release (e.g., its size and source), type of chemical released, industry category (e.g., chemical or petroleum manufacturers), and impact of the release (death, injury, and/or evacuation).

In response to laws and federal agency mandates for this type of information, numerous databases that contain accidental release information have appeared over the years. For example, EPA developed the Accidental Release Information Program (ARIP) database to collect information on the ways in which facilities have tried to prevent recurring releases. Another EPA database, known as the Emergency Release Notification System (ERNS) database, was created to help federal on-scene coordinators determine the appropriate federal emergency response to an individual release. None of the federal accidental release databases contain information on long-term economic or environmental impacts.

The Database Compatibility Problem

The existence of many different (and often incompatible) federal databases makes it difficult to develop a national picture of the problem of accidental releases. This conclusion was confirmed by a Report to Congress entitled, A Review of Federal Authorities For Hazardous Materials Accident Safety (EPA 550-R-93-002, December 1993). The report, referred to as the Presidential Review, was prepared by EPA in coordination with the National Response Team (NRT). It catalogues certain deficiencies in data quality, accessibility, and the compatibility of federal accidental release databases.

Some of the report's findings were based on an evaluation of accidental release databases maintained by several federal agencies including Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), and the U.S. Coast Guard (USCG). Each regulatory agency charged with controlling hazardous materials has developed at least one accident reporting system or database to accommodate its specific accidental release notification requirements and data needs. Consequently, the databases reflect different statutory definitions and terms (e.g., spill, release, accident, incident), different chemical lists, and different impact concerns (e.g., death). This complicates accidental release reporting. Also, the absence of comparable data sets and lack of database coordination among agencies has inhibited data interpretation, comparative analysis, and cross agency use of accident data. Although this situation has presented a confusing array of databases to industry, environmental groups, and the public, full merger of existing databases has been ruled out as being not realistic, feasible, or preferable. However, the NRT is considering a pilot project for linking the databases; this project is outlined in Chapter V.

A Helpful Step: Today's User's Guide

In follow-up efforts to the Presidential Review, an accident Workgroup, composed of members of the NRT, decided that developing a user's guide to federal accidental release databases might make these databases more usable, available, and comparable. Potential users for this guide include staff from federal government (both for agencies that maintain the data and for other agencies), state and local governments, industry and business, environmental groups, and the public. Users may come to this guide with different questions or hypotheses regarding accidental releases. By consulting this guide, users should be able to obtain a range of information, from data about specific releases to data about national release trends. As always, the information varies in quality, and is only useful if the user understands the limitations of the data and interprets the data appropriately. The guide is organized with these assumptions in mind.

Chapter II of the guide provides a list of the databases featured in this document, and outlines some general search strategies to assist the user in formulating a search and choosing the appropriate databases. Chapter III includes brief, descriptive profiles of seven federal accidental release databases maintained by the National Response Center (NRC), EPA, DOT, OSHA, and the Agency for Toxic Substances and Disease Registry (ATSDR). Each profile is two to four pages in length and briefly describes the database for those unfamiliar with the specific characteristics of the database. Additional databases not featured in these profiles are described at the end of Chapter III. Chapter IV provides a quick cross reference to the databases and to information of interest (e.g., chemicals covered, number of records). By reviewing Chapter IV's comparison of different databases, users of this guidance document may be better equipped to choose the database that best meets their information needs. Chapter V discusses the value of and possible pilot project for linking the databases to enable comparative analysis.

This guide is designed to be both accessible to the lay person and sufficiently detailed to assist the policy analyst or computer-oriented person. For instance, users who are unfamiliar with database search strategies and the specific databases described in this document should read Chapter II carefully and consult the cross reference exhibits in Chapter IV. Other users who are already somewhat familiar with these federal accidental release databases and who want more detailed information about a specific database should read Chapter III. Each agency has reviewed relevant sections of this guide for content and accuracy. As changes in regulations or agency needs occur, some information in this user's guide may become outdated.

II. DATABASES FEATURED AND SEARCH STRATEGIES

Databases Featured

Because of the large and potentially confusing number of accidental release databases in existence, the focus of this user's guide was limited to seven, federally maintained databases. The seven databases were selected because they: (1) contain information on accidental releases of hazardous chemicals; (2) are important data sources that support federal agency goals; and (3) are on-going collection efforts. The following table lists the selected databases profiled in this user's guide.

Acronym	Database	Lead Agency
IRIS	Incident Reporting Information System	NRC
ERNS	Emergency Response Notification System	EPA
ARIP	Accidental Release Information Program	EPA
HMIRS	Hazardous Materials Incident Reporting System	DOT
HLPAD	Hazardous Liquid Pipeline Accident Database	DOT
IMIS	Integrated Management Information System	OSHA
HSEES	Hazardous Substances Emergency Events Surveillance	ATSDR

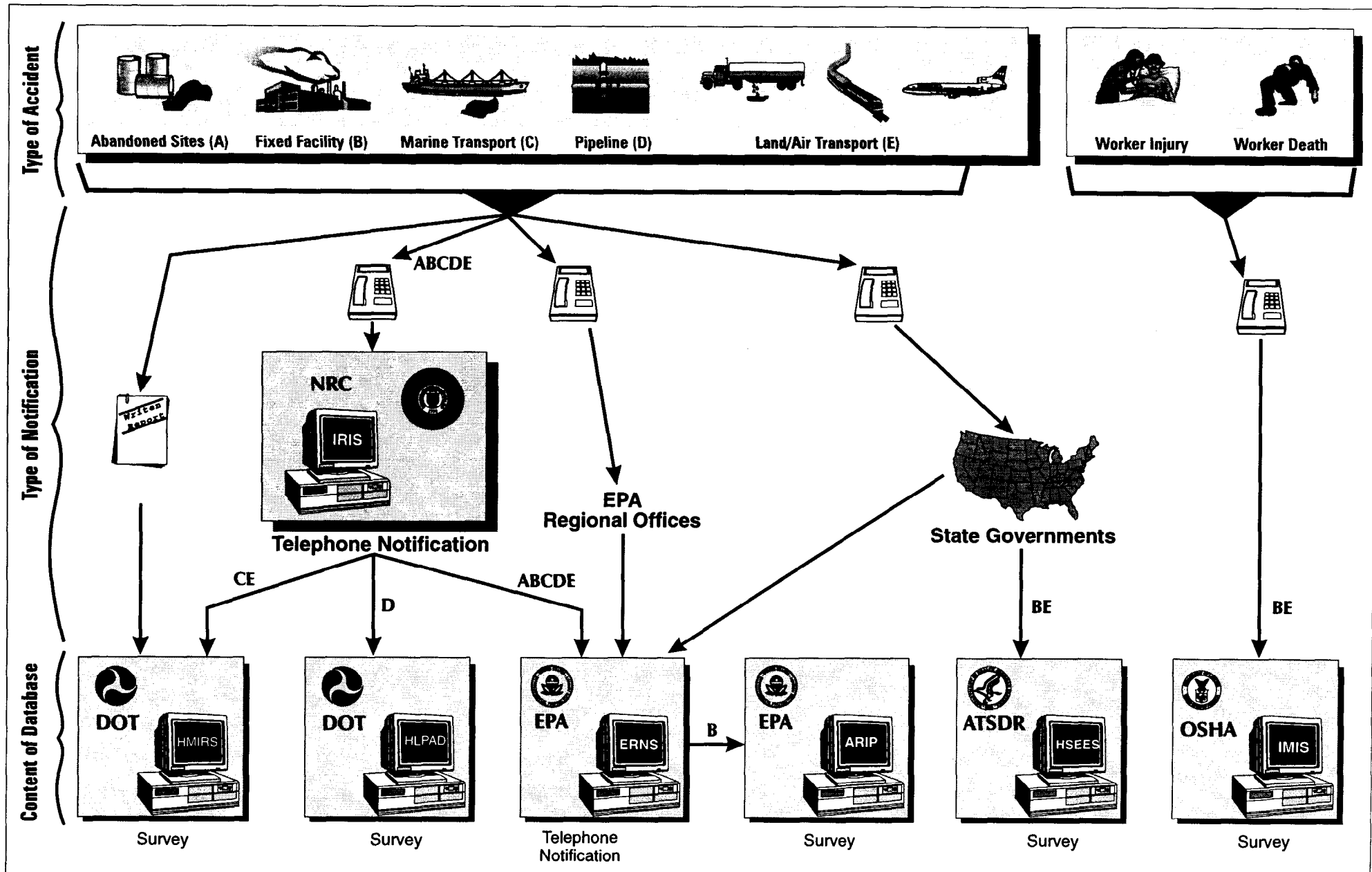
Most of these featured federal accidental release databases are currently not directly accessible to the public. Although this lack of accessibility is changing, the user generally will need to contact the federal agency directly to obtain desired information. Generally, different federal agencies have different procedures for requesting information. Under the Freedom of Information Act (FOIA), the user can request information by following the agency procedures in the Code of Federal Regulations (CFR): National Response Center/United States Coast Guard, 33 CFR 1; Environmental Protection Agency, 40 CFR 1; Department of Transportation, 49 CFR 7; Occupational Safety and Health Administration, 29 CFR 1912; and Agency for Toxic Substances and Disease Registry, 48 CFR 324. However, the user should first consult individual database profiles in Chapter III to learn more detailed information about the featured databases and to identify alternative ways to access them.

Many of these databases are related to one another in that they are built on the same basic information. The "parent" database is the National Response Center's IRIS database, which is the depository of almost all release notifications reported to the federal government. NRC's IRIS database supports many federal government agencies that have responsibilities for emergency response, emergency planning, and release prevention. These agencies include the U.S. Coast Guard, Environmental Protection Agency (EPA), Department of Transportation (DOT), Federal Emergency Management Agency, Department of Energy, and the Department of Defense.

Exhibit 1 presents the general relationship among the seven federal accidental release databases featured in this user's guide. NRC's IRIS forms the core for a family of other federal databases that collect more detailed or follow-up information to support release prevention, enforcement, and policy decisions. Other databases combine IRIS information with other release notification information. For example, EPA's ERNS database combines release notifications contained in IRIS with the notifications

Exhibit 1

General Relationship Among Accidental Release/Notification Databases



reported to the EPA regions. In turn, a subset of the ERNS database is used to form EPA's ARIP database, which focuses on collecting specific follow-up information about the prevention of more severe releases.

Two databases featured in this guide are not outgrowths of NRC's IRIS database, but may contain information about similar releases (Exhibit 1). Inclusion of information in OSHA's IMIS database is triggered by a fatality or at least three worker injuries, and may not necessarily involve the release of a hazardous substance. Similarly, the source for release and consequence information for ATSDR's HSEES database is not the IRIS database, but data collected primarily from state health departments.

The user should also recognize that the number of release records in the seven featured databases varies greatly (Exhibit 2). IRIS, ERNS, and HMIRS contain the largest volume of release notification records. These three databases may provide information about a larger number of releases, but they may not be the most accurate or complete. In addition, the type of releases covered in the seven featured databases also vary greatly (Exhibit 3). The different types of releases include releases from fixed facilities, from transport sources (e.g., ship, truck, rail, pipelines, aircraft), and from abandoned dumps or waste sites.

Search Strategies

To help guide the user in conducting a database search, this section provides users with some general database search strategies and suggestions for analyses. Using this guidance, users can formulate a search, and then select the most appropriate database or databases with which to work. Examples are included that demonstrate how the databases can be examined. An applied approach is provided to address some of the same issues of database compatibility and utility mentioned in the Presidential Review. Chapter V of this document advances this discussion of search strategies by describing the value and possibility of using information from several different databases to get more complete information about releases.

STEP 1 - Formulate objectives and scope

An important and critical step in obtaining the desired information is to first define the objective or goal of a search. One objective could be to test a hypothesis, such as: releases of toxic gases have greater consequences for the public than liquid spills even though gas releases are significantly smaller than liquid spills. Another objective could be to obtain background information (e.g., number of spills per year) or to supplement existing information about a specific incident. Formulating the objective helps to determine the scope of the analysis. Even a comprehensive analysis should be sufficiently detailed so that the scope of the data search is narrow enough to make the data meaningful. The search can be appropriately narrowed by focusing on releases of certain chemicals, releases in certain geographic areas, releases of certain sizes, and releases in certain years. For example, a sufficiently defined search might examine the number of chlorine releases at water treatment facilities. In addition, a narrow scope can reveal findings that might otherwise be diluted in searches of larger data sets and/or large databases like IMIS, ERNS, and HMIRS.

STEP 2 - Determine the types of information needed

After a goal or objective has been defined, the user should identify all of the types of information or data elements that might be applicable to his or her objective, such as quantity released, chemical released, and injuries. The data element or kind of information contained in a database should match the user's desired information before choosing an appropriate database. For example, for a data element on injuries, the user should ask what level of detail about the injury is needed (i.e., is it sufficient for a

Exhibit 2

Incidents Involving Accidental Chemical or Petroleum Releases/Notifications

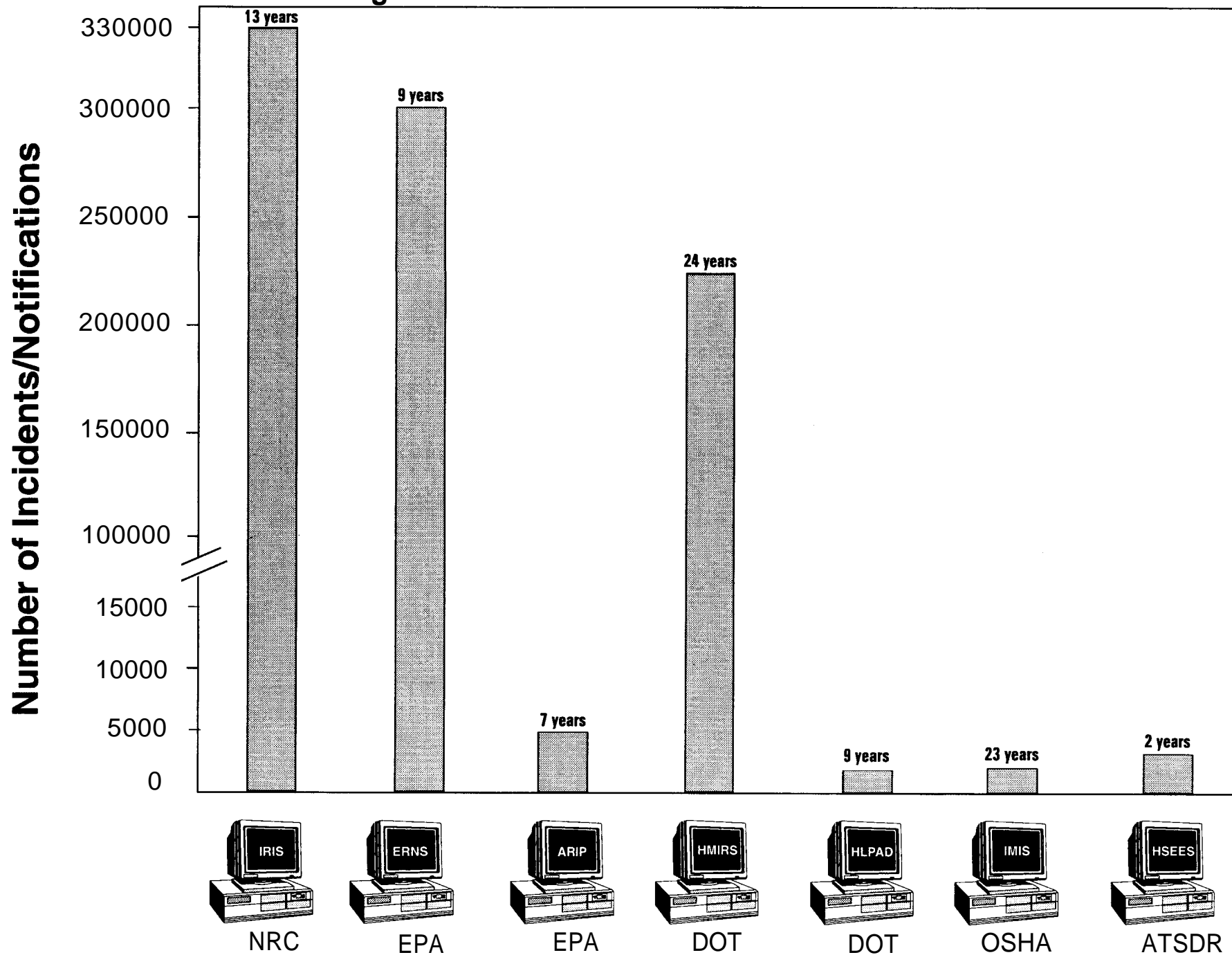



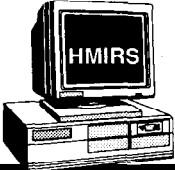





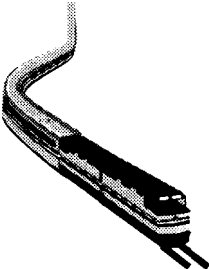


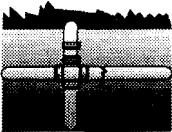



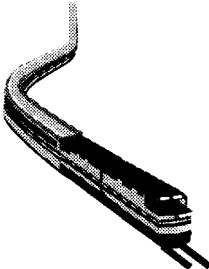



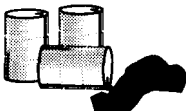


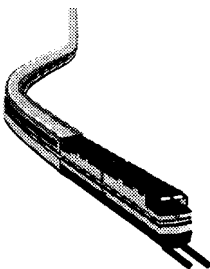





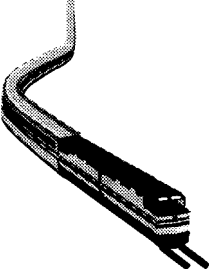



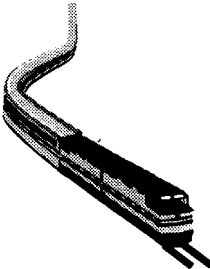



Exhibit 3 Types of Releases Covered

<p>NRC</p> 	<p>EPA</p> 	<p>EPA</p> 	<p>DOT</p> 	<p>DOT</p> 	<p>OSHA</p> 	<p>ATSDR</p> 
      	      		   		   	   

yes/no response that the injury occurred, or is it necessary to have the number of injuries or, even further, is it necessary to have information about who was injured (e.g., facility employee, public, contractor, responder?)). Also, if regulatory issues are being explored, it is important to outline the regulatory definitions needed in the data elements. For example, a database search on releases of interest to the Coast Guard should focus on a data element that covers releases to navigable waterways rather than just releases to water.

STEP 3 - Examine level of accuracy required for analysis

To consider this issue, the user may need to ask if the results have to reflect national trends. Is it more important to have verified information in a relatively small data set (e.g., ARIP) or to have a larger database of initial release notification information (e.g., ERNS)? More records do not necessarily increase the accuracy of the data findings, especially if the information is unverified or particularly subject to uncertainty. For example, an analysis of release quantity in ERNS is probably subject to significant error because the information is reported soon after or during a release when the release quantity may not be known accurately. ARIP can provide better release quantity information because the information is provided several months after the release. However, the ARIP database focuses on only the more serious releases and therefore, the quantity information cannot be extrapolated to national trends.

STEP 4 - Know your desired output

Is a printout of a single release record desired? For comprehensive aggregate analyses, are simple frequency distributions required or are more sophisticated correlations or statistical analysis required? By asking these questions in advance to define the search, the user will allow the agency contact to better respond to the user's database needs. Of course, the user can work along with the database contacts to prepare the information request further.

STEP 5 - Use Steps 1-4 as the basis to select the most appropriate database

The most common database searches involve identifying a single release, requesting information on all releases from a specific company or facility, or performing an aggregate analysis. If the user is unsure which database will meet his or her needs, the user should first consult the Chapter IV exhibits, keeping in mind the kind of search that is desired. Cross-comparison of databases presented in these exhibits can help determine which databases can meet the objectives of the search. Then, the user should review the more detailed database profiles in Chapter III to confirm his or her choice and to learn how to request the search or to gain access to the data.

If the search focuses on a single release, the user may have to determine if this kind of release (e.g., transportation) is likely to be reported in a given database, considering the characteristics and scope of the database. Exhibit 4 in Chapter IV provides information about the chemicals and industries covered and the criteria for including the release in the database. The user may also ask what critical information (e.g., release date, company name, and chemical released) he or she must have for identifying the release. If the search asks for all releases or notifications related to a specific company for a particular material, the user should also include in the search a listing of the company name, including subsidiaries and common misspellings. In both kinds of searches, the user should request the kind of information about the release that is important to him or her (e.g., damage, cause) and that is collected in the database. Sometimes, federal agencies provide a standard set of information about the release. Exhibit 5 in Chapter IV will assist the user in identifying the data elements needed. Exhibit 6 can provide specific details on whether a specialized piece of information, such as Dunn and Bradstreet number, can be used to further identify the release or facility.

For aggregate searches, the user should carefully choose the database that provides the information to satisfy the objective of the analysis. The user should use the database profiles in Chapter III and the exhibits in Chapter IV to become familiar with the precise definition of the data elements in order to prevent misinterpretation of the data. For example, an analysis of deaths that involve releases of hazardous substances may be misleading if OSHA's IMIS database is selected. The death information in IMIS does not differentiate between a death due to release exposure or to mechanical exposure (e.g., crushed by an overturned forklift that happened to spill a pallet of hydrochloric acid). Along with an understanding of the definition of the data elements, the user must determine if the types of information needed are found in the database. For example, the number of chlorine releases at pulp/paper mills can be effectively searched in ARIP, because ARIP contains information on the chemical or CAS number and on the SIC code, which can identify pulp/paper mills. For overall trend analysis (e.g., frequency distributions on the number of releases or chemicals released), the larger national databases such as ERNS, HMIRS, and IRIS are most useful.

Some users have conducted risk analyses with the release data. For overall risk analyses on transportation releases, the user could use HMIRS to determine the number of transportation releases and use another information source to determine the number of chemical shipments. The larger databases are also valuable if the user wants to identify the number of releases/notifications and associated release information related to a company for a particular material over a certain period of time. Databases that have detailed, verified information such as ARIP, HMIRS, and HSEES are suited to the testing of specific hypotheses (e.g., chlorine releases disproportionately cause consequences) and to analyses on different subsets of data (e.g., data on releases during operations versus releases during maintenance activities). The user should be cautioned about comparing the results of an analysis conducted on one database with the results from another database. Broad statistical analysis is not comparable across database due to differing scopes of the databases (e.g., criteria for reporting, industries covered).

As noted above, Chapter V of this document takes this discussion of search strategies a step further, by describing possible ways to use information from linked databases to get more complete information about releases.

III. DATABASE PROFILES

In this chapter, a profile format is used to describe each of the seven federal accidental release databases. Using the information provided in each profile, the user can request or access desired data and can analyze the data appropriately. The profile outlines a **general description** of the database including its history, purpose of collection, typical users, database size, and a list of potential contacts. Along with general information, the user is provided with information on the **characteristics of the data** that include data sources, data scope (e.g., types of chemical reported, industries reported, criteria for reporting), and data limitations and quality (e.g., missing data, data accuracy, data verification). In addition, the user is supplied with a listing of key **data elements** contained in the database. Another section of the profile covers **ways and costs to access the data** and a final section provides **helpful hints** in searching for data, given the idiosyncracies of each database. The user can also refer to two appendices: one that presents examples of completed accident report forms for the databases (Appendix A) and another that includes datafield dictionaries listing the computer format and data elements in each database (Appendix B).

The database profiles are valuable for users who:

- ▶ Want to introduce and familiarize themselves with details of several federal accident release databases;
- ▶ Have heard of a federal database and are not sure if it is the right one for their needs;
- ▶ Are interested in linking or using several databases to perform an analysis;
- ▶ Know which database has the desired information, but do not know how to access it; or
- ▶ Have used one of the databases before, but may seek ways to make their information search more efficient or effective.

Following the profile section, short descriptions of several other federal release or reporting databases are provided.

Profile

Acronym:	IRIS
Database Name:	Incident Reporting Information System
Agency Office:	U.S. Coast Guard, National Response Center
Primary Contact:	Logistics Support Officer, National, Response Center
Contact Address:	Chief, NRC
	U.S. Coast Guard, National Response Center
	Room 2611, G-TGC-2
	2100 2nd Street, SW
	Washington, DC 20593
Contact Phone:	(202) 267-2185

GENERAL DESCRIPTION

The Incident Reporting Information System (IRIS) is a relational database operated by the National Response Center (NRC) at the U.S. Coast Guard Headquarters. This database system should not be confused with another EPA system with the same acronym - Integrated Risk Information System (also known as IRIS). IRIS contains data on oil, chemical, biological, and etiological discharges into the environment anywhere in the U.S. or its territories. There are many federal statutes that require reporting of such releases:

- Oil spills are reported under Section 311(b) of the Federal Water Pollution Control Act (FWPCA) of 1973, Section 306(a) of the Outer Shelf Lands Act Amendments of 1978, and Section 18(b) of the Deepwater Ports Act of 1974.
- Chemical spills are reported under Section 302 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, and Federal Hazardous Materials Transportation Laws.
- Pipeline spills are reported under the Hazardous Liquid Pipeline Safety Act.
- Air releases are reported under the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), Federal Hazardous Materials Transportation Laws, and the Resource Conservation and Recovery Act (RCRA).

IRIS supports the informational needs of various organizations within the National Response Team (NRT), though it is used primarily for emergency response notification. Staffed by the U.S. Coast Guard, the NRC collects information nationally on reports of hazardous material releases as well as releases of hazardous substances and oil from fixed facility and transportation incidents. These reports are transmitted daily to Volpe National Transportation Systems Center in Cambridge, MA, and compiled in a separate database. This database is reviewed to eliminate duplicates and merged with DOT-EPA's jointly-managed TELERNS database. The NRC's primary role is to relay incident information immediately to the Federal On-Scene Coordinator (Coast Guard or Environmental Protection Agency official) who coordinates any potential federal response to the incident.

IRIS (Continued)

Data from IRIS reports are also disseminated to other response agencies, including USCG, EPA, Department of Transportation, Federal Emergency Management Agency, and the Department of Defense. Data are also passed to several states via a system called STATE*FAX. The NRC is encouraging more states to link up with the NRC notification process and incident database. IRIS data can be provided to other agencies for guidance and regulatory development, compliance and enforcement support, statistical and trend analysis, academic research, or property transfer/site audits. The NRC handles approximately 300,000 telephone calls per year, and most are recorded. Not all of the telephone calls relate to unique incidents. For example, of the 300,000 calls received in 1990, only 25,200 unique incident reports were recorded. The NRC estimates the annual growth rate of incident reports to be approximately ten percent. As of September 30, 1994 there were 247,276 incidents in the IRIS database. This represents all notifications made to the NRC since 1982. For CY 1994, NRC expects over 33,000 incidents to be reported. Notification reports received by the NRC from 1974 to 1982 are archived. The relational database maintained by the U.S. Coast Guard was initiated in 1982 and reorganized in 1988 to become the IRIS system that is in existence today. The data collected have remained unaltered; specific packaging "features" have been recently added. In cases where new information on previous notifications becomes available, the new data are entered as a new record while the old information remains unchanged. Periodic data reviews occur to ensure that data in the IRIS database are accurate (e.g., spelling and geographical location).

CHARACTERISTICS OF DATA

Source IRIS data are entered directly into a database when a release is reported to the NRC. Such information is usually provided by telephone reports from persons associated with the facility or transportation vehicle that had the release, or from government officials or private citizens who observed the release.

Scope IRIS contains three categories of release reports: hazardous substances as designated by CERCLA; oil and petroleum products defined by the Clean Water Act; and materials that are not CERCLA- or CWA-defined substances.

The number and types of chemical releases that are reported to IRIS have changed over the years because of regulatory changes, changes in the chemical industry (packaging and increased productivity), changes to lists of chemicals in the regulations, and surges in reporting from a specific industry. **Information about specific changes in the IRIS database over time can be obtained from the NRC's Logistics Support Officer at (202) 267-2185.**

IRIS contains data on reported releases from fixed facilities, marine/offshore facilities, pipelines, and transportation vehicles. Both actual and potential releases may be reported to IRIS. Practice drills for emergency releases are also captured in the database. IRIS notification reports are comprised of primarily short answer questions.

Data Limitations Because IRIS is a database of initial notifications made during or immediately after a release occurs, exact details of the release are often unknown. Consequently, the information provided to the NRC may be incomplete, preliminary, or inaccurate. For example, release quantity information is often not reported accurately at the time of NRC notification. If the notifying party is representing the responsible party, the information in the database is usually more complete than if reported by a citizen or observer.

Duplicate reports may appear when a caller makes a second report to update original data, or a release is observed and reported by more than one person. Less than 20

IRIS (continued)

percent of IRIS records are estimated to be duplicates. Notifications are never removed from the database. Updates are occasionally provided by the responsible party or the OSC. Reports are taken over the telephone; for this reason, errors in transcription (e.g., misspellings) may limit the quality of some data. A Duty Officer reviews each report in an effort to eliminate these errors.

IRIS is not an incident-specific database because it contains notification information on both actual, misreported, and potential releases. Therefore, conclusions about release distributions or correlations based on IRIS information may be deceptive because the data analysis may include information on potential or misreported releases. Methods or resources to help overcome or adapt to these data limitations are described in the helpful hints section.

IRIS does not distinguish whether deaths and/or injuries resulted from the release of the chemical or from the incident that caused the chemical release.

DATA ELEMENTS

There are approximately 140 datafields in IRIS. The following key categories are included in IRIS:

- date/time of incident
- incident location
- medium affected
- response actions
- quantity spilled
- evaluation of response
- material released
- cause
- source
- reporting source/person
- responsible company/discharger
- persons/agencies notified
- damage (deaths, property)
- personnel/agencies to be notified

Refer to the Datafield Dictionary (Appendix B), for a complete list of IRIS data elements.

ACCESS

Availability **FOIA Requests** Currently, for personnel from state and local government, industry, and the general public, a written FOIA request to the FOIA Officer is the preferred manner to request specific data or obtain more information about IRIS. Federal government personnel do not need to make a data request under FOIA, however, written data queries should still be directed to the FOIA Officer. **All requests should be addressed to: FOIA Officer, Commandant USCG, Room 2611, 2100 2nd Street SW, Washington D.C., 20593.** The Logistics Support section of the National Response Center oversees the database. The Logistics Support section may be contacted at (202) 267-2185 to assist in focusing requests, and answering questions about performing searches in IRIS. Requests for IRIS information are also available through e-mail using the Internet at **foia.msg/g-tl7@cgsmtt.comdt.uscg.Mil**. The cost for an IRIS search depends on the data medium requested (e.g., hard copy, floppy disk) and the time and effort expended to fill the request. Costs are usually minimal and are based on the fee schedule for Freedom of Information Act (FOIA) requests outlined in 40 CFR 2.120. There is no fee for data query requests made by the federal government.

Subscription for Information Government agencies can set up a query account to receive notification of major, potential major, and medium-size incidents within a specific region or type. This information is released weekly, sometimes daily, depending on the number of reports. These reports are called Incident Summary Reports (ISRs). To receive a subscription to these data, a written request is required, as is a commitment not to release

certain information contained in the reports. If the agency is responsible or obligated to publish all of the information, including information protected by the Privacy Act, the NRC can provide abbreviated reports excluding the sensitive information. Currently, over 250 individuals from various federal agencies subscribe to the ISRs.

Another service recently offered through the IRIS system is the Federal and State Notification Modules referred to as FNM and SNM. These modules immediately notify certain persons or groups in federal and state agencies of releases if the person has expressed interest in being notified in a timely manner. The program was initiated to notify governors of releases within their state. There are currently over a dozen different federal offices and 27 states enrolled in this new program. The agencies, such as the Fish & Wildlife Service, and states may use FNM and SNM information to notify sensitive populations of releases (e.g., zoos, and water treatment plants). These parties have an interest in responding quickly to releases to reduce the impact. To receive a subscription to these data, a written request is required, as is a commitment not to release certain information contained in the reports. If the federal or state agency receiving the notification is responsible or obligated to publish all of the information, including information protected by the Privacy Act, the NRC can provide abbreviated reports excluding the sensitive information.

Conditions of Use	IRIS data have various conditions that limit the use or disbursement of these data. For example, proprietary or trade secret information may not be released. "Sensitive" reports are available to tailor the formatted information to best meet the user's needs. Call the NRC for specific requests.
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Data Outputs, Hardware, and Software Requirements	The Logistics Support section performs queries for information and manages the IRIS database. IRIS data and analyses can be presented in various formats and are available in hard copy or on floppy diskettes.
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IRIS can provide information in DOS or UNIX, DYNIX-PTX compatible files.

Training/ support	The Logistics Support section provides support for IRIS-related requests and questions. The support group is available to assist in interpreting data and focusing FOIA requests.
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HELPFUL HINTS

- ▶ Keep in mind that most IRIS data are based on initial notification, and may not have been verified. Therefore, historical IRIS data on a specific incident may be inconsistent with data from other sources.
- ▶ There is a flag in the database that identifies duplicates or updates reported to the NRC.
- ▶ Release information on specific chemicals can be searched by chemical name or CAS number.
- ▶ Users undertaking statistical analysis should avoid small data sets because of the inaccuracy and incompleteness of the notification records.
- ▶ Users undertaking statistical analysis should be careful to consider and address multiple notifications for a single release.
- ▶ Any analysis should be sufficiently broad to minimize the influence of data spikes and regulatory changes.
- ▶ Consult with the Logistics Support section to help focus the analysis.

P r o f i l e

Acronym:	ERNS
Database Name:	Emergency Response Notification System
Agency Office:	U.S. EPA Office of Emergency and Remedial Response
Primary Contact:	ERNS Information Line
Contact Address:	ERNS Manager U.S. Environmental Protection Agency Mail Code 5202G 401 M Street, SW Washington, DC 20460
Contact Phone:	(202) 260-2342 or (703) 603-8960

GENERAL DESCRIPTION

The Emergency Response Notification System (ERNS) is an EPA database that contains data on release notifications of oil and hazardous substances reported to the National Response Center or the ten EPA regional offices. There are four primary federal statutes that require release reporting:

- Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980;
- Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986;
- Section 1808(b) of the Hazardous Materials Transportation Act (HMTA) of 1974; and
- Section 311 of the Clean Water Act (CWA).

Part or all of the information included in reports to the NRC may be collected in ERNS. ERNS notifications are used by On-Scene Coordinators (OSCS) to determine an appropriate federal response action. Data in ERNS reports may also be given to other response agencies including the state emergency response commission, local emergency planning committee, U.S. Coast Guard (USGC), Department of Transportation (DOE), Federal Emergency Management Agency-Office of Hazardous Materials (FEMA-OHM), and the Department of Defense (DOD). Other data applications include guidance and regulatory development, compliance and enforcement support, statistical and trend analysis, academic research, and property transfer/site audits. ERNS has received approximately 300,000 release notifications since its inception in 1986. All notifications reported to the NRC and EPA regional offices become part of the national ERNS database managed jointly by EPA and DOT as the TELERNS database. In cases where new information on previous notifications becomes available, EPA regional offices can provide periodic updates to the ERNS database at EPA Headquarters. Each EPA region also maintains its own region-specific database, which is a subset of the national database. New notifications are input daily.

CHARACTERISTICS OF DATA

Source	ERNS data are captured electronically when a release is reported to the NRC or EPA regional offices. Such information is usually provided by a person associated with the facility or transportation vehicle that had the release, though other observers of the release may also report it.
Scope	<p>ERNS contains three categories of release reports: hazardous substances as designated by CERCLA, oil and petroleum products defined by the Clean Water Act; and materials that are not CERCLA- or CWA-defined substances. CERCLA substances account for, on average, 19 percent of all notifications in ERNS. Oil notifications (as required by the CWA) account for 57 percent, and notifications of other chemicals comprise 24 percent. CERCLA releases that meet or exceed the reportable quantity (RQ) set forth in 40 CFR 302.4 must be reported. Oil releases that violate applicable water quality standards, cause a film, or cause a sludge/emulsion beneath the surface of water must be reported. Some of the release notifications of other chemicals (non-CERCLA and non oil chemicals) are generated by criteria established for reporting of transportation releases under HMTA or pipeline safety regulations.</p> <p>The number and types of chemical releases that are reported to ERNS have changed over the years because of regulatory changes, listing/delisting chemicals in the regulations, and surges in reporting from a specific industry. Information about specific changes in the ERNS database over time can be obtained from the ERNS Information Line.</p> <p>ERNS contains data on reported releases from fixed facilities, marine/offshore facilities, pipelines, and transportation vehicles. Both actual and potential releases may be reported to ERNS. ERNS notification reports are comprised of both short answers and long comments.</p>
Data Limitations	<p>Because ERNS is a database of initial notifications made during or immediately after a release occurs, exact details of the release are often unknown. Consequently, the information provided to the NRC or EPA may be incomplete, preliminary, or inaccurate. Only about a third of the 193 information datafields are completed for most of the release notifications.</p> <p>The majority of ERNS information is not verified or validated. The data are usually not updated with more current information unless an EPA region is involved in the response action. Data quality varies from one region to another.</p> <p>Approximately five percent of ERNS records are estimated to be duplicates. Duplicate reports may appear when a caller makes a second report to update original data or a release is observed and reported by more than one person. Reports are taken over the telephone, therefore, errors in transcription (e.g., misspellings) may limit the quality of some data.</p>

DATA ELEMENTS

The following key categories are included in ERNS:

- | | | |
|-------------------------|-----------------------------|----------------------------------|
| • date/time of incident | • evaluation of response | • responsible company/discharger |
| • incident location | • material released | • source |
| • medium affected | • cause | • damage (deaths, property) |
| • response actions | • persons/agencies notified | |
| • region information | • follow-up actions | |

Refer to the Datafield Dictionary (Appendix B), for a complete list of ERNS data elements.

ACCESS

Availability ERNS Information Line Currently, for industry, regulatory and enforcement support, **and** general public requests, the ERNS Information Line is the preferred way to request specific data or obtain more information about ERNS. Operated by EPA Headquarters, the **ERNS Information Line** at (202) 260-2342 can be used to address questions about ERNS and to perform reasonable data searches. The line accepts recorded messages from callers, and requests will be followed-up by a telephone call or letter from EPA or an EPA contractor, as appropriate. Requests for ERNS information may be made through e-mail using the Internet at **erns.info@epamail.epa.gov**. The cost for an ERNS search depends on the data medium requested (e.g., hard copy, floppy disk) and the time and effort expended to fill the request. Costs are based on the fee schedule for Freedom of Information Act (FOIA) requests outlined in 40 CFR 2.120. Data can be delivered via First Class Mail.

Bulletin Board In FY 1995, a bulletin board is expected to enable downloading of ERNS information. The bulletin board will have several advantages over the ERNS Information Line including more quick and easy access and no cost for the data.

Channels for EPA Personnel EPA Headquarters and regional personnel may access ERNS through the EPA local area network or by contacting the ERNS Manager at (703) 603-8735 or a regional ERNS Coordinator. Also, EPA and other government groups can set up a query account system with the Emergency Response Division to maintain easy access to the ERNS information.

FOIA Requests Both EPA Headquarters and regional offices can address ERNS information requests through Freedom of Information Act (FOIA) requests. A listing of regional FOIA offices is listed in the fact sheets on ERNS (see below). The fee schedule for FOIA requests is outlined in 40 CFR 2.120.

Published Information General ERNS information and data analysis is available in the following fact sheets from the ERNS Information Line at (202) 260-2342:

An Overview of ERNS, March 1995, Publication 9360.0-29FSA
ERNS and Site Searches, March 1995, Publication 9360.0-36FS
ERNS Statistics, March 1995, Publication 9360.0-37FS
ERNS and CERCLA, May 1994, Publication 9360.0-22FSA
ERNS and Oil, May 1994, Publication 9360.0-23FSA

NTIS Magnetic data tapes containing ERNS data are currently available through National Technical Information Service in Springfield, VA at (703) 487-4650. The order numbers for magnetic data tapes for 1987-1994 are as follows: 1987-- PB94-504180; 1988-- PB94-504198; 1989-- PB94-504206; 1990-- PB94-504131; 1991-- PB94-504149; 1992--PB94-504156; 1993-- PB94-504164; and 1994-- PB94-593350. A single update costs \$240 (see section on data outputs, hardware, and software requirements for further information on magnetic tapes).

Conditions of Use Generally, ERNS data are available without conditions or usage limitations. Reporting party (caller) data is typically not released.

Data Outputs, Hardware, and Software Requirements From the ERNS Information Line, ERNS data and analyses can be presented as summary release information or as standard ERNS reports. Both are available in hard copy or electronically on floppy disks. Summary release information reports are organized in table form to provide a broad overview of data. These reports are useful for analyzing trends in chemical and oil releases, or for comparing groups (e.g., total release reports involving crude oil by year).

Standard ERNS reports are either dBASE® files or one-page reports in various wordprocessing formats containing information about specific release notifications. This one-page report is best suited to presenting small subsets of data, such as notifications from a particular geographical region, on a specific chemical, or about an individual site.

Magnetic data tapes are also available through NTIS for requestors who have extensive needs for ERNS data and who have the hardware necessary to read 9 mm 6250 or 1600 bip ASCII magnetic tapes or 3480 cartridges. Included with each tape is a data dictionary that describes the fields in ERNS and a tapeout log that shows the number and lengths of records and blocks.

Training/support The ERNS Information Line provides support for ERNS-related requests and questions.

HELPFUL HINTS

- ▶ Keep in mind that most ERNS data are based on initial notification, and may not have been verified. Therefore, historical ERNS data on a specific incident may be inconsistent with data from other sources.
- ▶ Release information on specific chemicals can be searched by chemical name or CAS number.
- ▶ Because names and addresses may include misspellings or alternative spellings (e.g., avenue or ave.), a site-specific search should encompass a larger area of investigation (e.g., county) to assure that all site information will be captured regardless of any data inconsistencies in the site-specific name or address.
- ▶ Users undertaking statistical analysis should avoid small data sets because of the inaccuracy and incompleteness of the notification records.
- ▶ Users undertaking statistical analysis should be careful to consider and address multiple notification for a single release. ERNS maintains flags to minimize this problem.
- ▶ Any analysis should be sufficiently broad to minimize influence of data spikes and regulatory changes.
- ▶ Consult with the ERNS Information Line to help focus the analysis.

P r o f i l e

Acronym: ARIP
Database Name: Accidental Release Information Program
Agency Office: U.S. EPA's Chemical Emergency Preparedness and Prevention Office
Primary Contact: ARIP Manager
Contact Address: U.S. Environmental Protection Agency
Mail Code 5101
401 M Street, SW
Washington, DC 20460
Contact Phone: (202) 260-8942 or (202) 260-1448

GENERAL DESCRIPTION

The Accidental Release Information Program (ARIP) database was developed by EPA to determine the causes of accidental chemical releases, to identify the steps that could be taken by industrial facilities to prevent releases, and to outline industry prevention practices. The database is assembled from information provided by facilities that have had significant releases of hazardous substances in response to a specially designed questionnaire. The questionnaire consists of 23 questions about the facility, the circumstances and causes of the incident, the accidental release prevention practices and technologies in place prior to the event, and any additions or changes made to these technologies and practices as a result of the event. The questionnaire focuses on several areas of accident prevention including hazard assessments, training, emergency response, public notification procedures, mitigation techniques, and prevention equipment and controls. EPA is authorized to collect information on accidental releases under:

- Section 3007(a) of the Resource Conservation and Recovery Act (RCRA);
- Section 104(b)(1) and (e) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA);
- Section 308(a) of the Clean Water Act (CWA); and
- Section 114 of the amended Clean Air Act (CAA).

EPA Headquarters maintains the national ARIP database, although the EPA regions may have hard copy printouts or electronic records of the ARIP questionnaires in some cases. The ARIP database has collected over 4,800 release records since its inception in 1986. It is updated once a year.

CHARACTERISTICS OF DATA

Source ARIP data are provided by facilities that have had significant releases of hazardous substances.

ARIP (continued)

Scope

Collection of ARIP data is triggered initially by incidents reported to the ERNS system. U.S. facilities are required by law to report releases of certain substances when those releases exceed a certain chemical-specific quantity or reportable quantity (RQ). EPA periodically screens the ERNS database to find fixed facility release events that meet one or more of the following triggers:

- The release resulted in a death or injury;
- The release involved 1,000 pounds or more of a hazardous substance with an RQ of 1, 10, or 100 pounds, or the release involved 10,000 pounds or more of a hazardous substance with an RQ of 1,000 or 5,000 pounds;
- The release was the fourth through tenth release in a 12-month period (repeat release); or
- The release involved an extremely hazardous substance from section 302 of EPCRA

EPA sends a detailed questionnaire to any facility with a reported release that meets one or more of these criteria. When the questionnaire is returned, the data are recorded into the ARIP database. ARIP does not capture events associated with flammable or petroleum products.

In September 1993, the criteria for ARIP releases changed to target those accidental releases at fixed facilities that resulted in casualties with off-site consequences or environmental damage. Off-site consequences include any casualty, evacuation, shelter-in-place, or other necessary precaution taken by individuals off-site as a result of the release. Environmental damage includes wildlife kills, significant vegetation damage, soil contamination, and ground and surface water contamination. Most records in ARIP consist of incidents that took place prior to September 1993 when the less restrictive criteria was used for inclusion in the database.

Data

Limitations

For several years, the ARIP questionnaire was revised so that some information was added and other information was deleted. Thus, analysis on some datafields cannot be performed on the entire database. Also, the short description of the accident is not contained in the database and must be analyzed in the hard copy of the questionnaire. Because ARIP is designed to capture the most serious or potentially serious releases, it is not statistically representative of all industry releases. The collection of ARIP data was dependent on the sometimes uneven collection efforts of the EPA Regions; therefore, the data does not truly represent the geographic distribution of releases nor reflect release trends over time. However, the information is considered accurate because the data are provided directly by facilities several months after the release when most information should be known. The database is also periodically reviewed for data assurance/quality control to identify data entry errors, inconsistent information, or questionable data.

DATA ELEMENTS

The following key categories are included in ARIP:

- date/time of incident
- quantity released
- medium affected
- costs to facility and public
- number of deaths/injuries to workers, contractors,
- duration of release
- whether and type of hazard evaluation conducted
- cause
- release prevention practices prior to release
- release prevention practices installed after release
- environmental damage

ARIP (continued)

- responders, and public
- number evacuated or sheltered
- persons/agencies notified
- changes to training
- end effect of release (e.g., explosion, spill)
- location of release (e.g., vessel, pipe)
- how public notified
- immediate repairs

Refer to the Datafield Dictionary (Appendix B), for a complete list of ARIP data elements.

ACCESS

Availability Bulletin Board In fiscal year 1995, a bulletin board is expected to enable downloading of ARIP information. The bulletin board will have several advantages over contacting the EPA ARIP manager, including quicker and easier access, more frequent updates, and no cost for the data.

Channels for EPA Personnel EPA Headquarters and regional personnel may access ARIP by contacting the ARIP Manager or an EPA regional ARIP Coordinator.

FOIA Requests Both EPA Headquarters and regions can address ARIP information requests through Freedom of Information Act (FOIA) requests. A listing of Regional FOIA offices is referenced through the ERNS database profile. The fee schedule for FOIA requests is outlined in 40 CFR 2.120.

Published Information General ARIP information and data analysis are available in the following fact sheets and publications from the EPCRA hotline at 1-(800) 535-0202:

Accidental Release Information Program Fact Sheet, September 1991 and November 1993.

Chemical Accident Prevention Bulletin - why Accidents Occur: Insights From the Accidental Release Information Program, June 1989.

Accidental Release Information Program Implementation Guide, October 1991.

Conditions of Use Generally, ARIP data are available without conditions or usage limitations.

Data Outputs, Hardware, and Software Requirements Custom hard copy reports are available from the EPA ARIP manager. A dBase version of the database or analysis may also be available.

Training/Support The EPA ARIP manager provides support for ARIP-related requests and questions.

HELPFUL HINTS

- ▶ Because the ARIP questionnaire has changed several times, certain data may not be available for all records (e.g., cost damage data are only available starting with log number 2991, hazard evaluation data are only available starting from log number 3.55). Contact the EPA ARIP manager for further detailed information on cautions in using data.
- ▶ Release information on specific chemicals can be searched by chemical name or CAS number.

Profile

Acronym:	HMIRS
Database Name:	Hazardous Materials Incident Reporting System
Agency Office:	U.S. DOT's Research and Special Programs Administration, Information Systems
Primary Contact:	Information Systems Manager
Contact Address:	U.S. Department of Transportation, RSPA Information Systems Mail Code DHM-63 400 7th Street SW Washington, DC 20590
Contact Phone:	(202) 366-4555

GENERAL DESCRIPTION

The Hazardous Materials Incident Reporting System (HMIRS), a part of the DOT's HMIS, is a computer database that contains data on the unintentional release of hazardous materials during the course of transportation. The information is compiled in accordance with the requirements of the Federal Hazardous Materials Transportation Law (49 U.S.C. 5101). DOT regulations stemming from FHMTL require carriers to notify the NRC immediately via telephone of releases of hazardous materials occurring during the course of transportation that result in human injury or death; estimated carrier or property damage exceeds \$50,000; an evacuation of the general public occurs; one or more major transportation arteries or facilities are closed or shut down; the operational flight pattern or routine of an aircraft is altered; fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive material; fire, breakage, spillage or suspected contamination occurs involving shipment of etiologic agents; or a release of a marine pollutant in a quantity exceeding 450 L for liquids or 400 kg for solids. These telephonic notifications are received by the NRC and transmitted to the DOT-EPA's jointly managed TELERNS database. These regulations also require interstate carriers, and certain intrastate carriers, to submit written reports on all unintentional releases of hazardous materials occurring during the course of transportation. These written reports are entered into the HMIRS database. The database contains approximately 220,000 records (as of 9/94) of written reports on unintentional hazardous material releases since 1971. RSPA, the office that manages HMIRS, estimates that over 15,000 reports are received annually.

The HMIRS system is used to highlight problem areas, to pinpoint needs for corrective action, and to provide a statistical compilation of transportation incidents involving hazardous materials. Written reports to HMIRS are updated monthly; telephonic reports are entered daily.

CHARACTERISTICS OF DATA

Source	Carriers of hazardous materials are required to report certain unintentional releases that occur during transportation. The reporting process includes: (1) immediate telephone notification to NRC, and (2) a written incident report on DOT Form F5800.1, to be submitted within 30 days of the incident by a representative of the releasing carrier.
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HMIRS data are captured electronically when a written report is received by DOT. A subsystem of HMIRS contains telephonic reports received by the NRC since 1982.

Scope

HMIRS contains unintentional release reports of DOT regulated materials, CERCLA chemicals, petroleum, explosives, pesticides, and other chemicals. HMIRS also contains information on any unintentional release of hazardous materials during the course of transportation. RSPA has indicated that the number of the releases has been steadily increasing as more carriers are aware of the reporting requirements, but the number of serious incidents has remained relatively constant. Information about specific changes in the HMIRS database over time can be obtained from the Information Systems Manager at DOT/RSPA Information Systems.

HMIRS incident reports are comprised of text information boxes, check box responses, and a descriptive comment section. See Appendix A for a copy of a sample report and Appendix B for a datafields dictionary for HMIRS.

Because the HMIRS database is based on written reports submitted by the carrier, details of each release are usually accurate. The majority of HMIRS information is validated, as fatality and injury information is verified through follow-up reports, increasing the accuracy of the HMIRS data. RSPA estimates that virtually all of the approximately 175 datafields are completed for most of the incidents because written reports are filed within 30 days of the release. The HMIRS database is believed to be a highly accurate record of incidental releases of hazardous material during transportation. To attest to the completeness of the data, RSPA estimates that less than 0.1 % of the records contain duplicates. Though duplicates are possible, the data are periodically reviewed and reconciled to avoid them.

The Incident Report Form (DOT F5800.1) was revised and expanded in 1990 to capture additional location and packaging information.

**Data Quality/
Limitations**

HMIRS captures only the injuries or deaths that were a direct result of the material's release, not from the event which caused the release. For instance, if a barrel is dropped, two types of injuries could result: (1) a chemical burn from the exposed chemical and (2) an injury from the physical impact of the barrel. Only the first is recorded.

HMIRS materials are listed by their proper shipping name, which is sometimes a category (e.g., pesticides or flammables) rather than a specific chemical. Materials can not be searched by CAS Number because no CAS Number is entered into HMIRS.

HMIRS contains information reported by carriers by rail car, aircraft and vessel; interstate and foreign carriers by motor vehicle; and intrastate carriers by motor vehicle for hazardous waste, hazardous substances, flammable cryogenic liquids in portable tanks and cargo tanks, and marine pollutants. Other releases occurring during intra-state transportation by an intra-state carrier are not included.

DATA ELEMENTS

The following key categories are included in HMIRS:

- date/time of incident
- incident location
- shipper name
- carrier name

- mode of transport
- commodity involved
- release cause (e.g., vehicular accident)
- package failure information
- monetary damage estimates
- consequences: deaths, injuries, evacuations
- quantity released
- number of containers shipped

Refer to the Datafield Dictionary (Appendix B), for a complete list of HMIRS data elements.

ACCESS

Availability RSPA Information Systems Manager Currently, for industry, regulatory and enforcement support, and general public requests, the DOT, RSPA Information Systems Manager is the preferred contact to request specific data or obtain more information about HMIRS. The RSPA Information Systems Manager can be used to address questions about HMIRS and to perform reasonable data searches. The cost of these searches varies, dependent on the length and detail of the report and media requested for information. The minimum cost for a request is \$35. HMIRS information is available to federal agencies at no cost. For more information contact DOT, RSPA at (202) 366-4555.

Channels for EPA Personnel EPA Headquarters and regional personnel should contact the Information Systems Manager at (202) 366-4555 to obtain written or electronic reports, or alternatively to receive assistance interpreting the data.

FOIA Requests FOIA requests should be addressed to the FOIA Officer of the U.S. DOT, Mail Code DCR 1, 400 7th Street, SW, Washington, DC 20590.

Published Information Compiled HMIRS statistics are published biennially in the DOT/RSPA "Biennial Report On Hazardous Materials Transportation."

Conditions of Use Generally, HMIRS data is available without conditions or usage limitations.

Data Outputs, Hardware, and Software Requirements HMIRS data and analyses can be presented as summary release information or standard HMIRS reports. Both are available in hard copy or electronically on floppy disks, 9-track tapes, or VAX tape cartridges.

Standard HMIRS reports are either ASCII, EBCDIC, or xbase (DBF) files.

Training/Support The RSPA HMIRS Information Systems Manager provides support for all HMIRS-related requests and questions.

HELPFUL HINTS

- ▶ Any analysis should be sufficiently broad to minimize influence of data spikes.
- ▶ Consult with the RSPA HMIRS Information Systems Manager to help focus the analysis.
- ▶ The telephonic notification data is contained in the TELERNS database. This database is jointly managed by the DOT and EPA

Profile

Acronym:	HLPAD
Database Name:	Hazardous Liquid Pipeline Accident Database
Agency Office:	U.S. Department of Transportation Office of Pipeline Safety Research and Special Programs Administration
Primary Contact:	HLPAD Manager
Contact Address:	US, DOT Office of Pipeline Safety, RSPA 400 7th Street S.W. Washington, D.C. 20590
Contact Phone:	(202) 366-4569

GENERAL DESCRIPTION

The Hazardous Liquid Pipeline Accident Database (HLPAD) is a DOT Office of Pipeline Safety database that contains information on the accidental release of liquids. The database is a result of the Hazardous Liquid Pipeline Safety Act of 1979. The Act requires that liquid pipeline operators immediately notify the NRC via telephone of accidental releases. These telephone notifications are forwarded from the NRC to the DOT-EPA's jointly managed TELERNS database to DOT. Pipeline operators must also submit written reports on all releases. These reports are entered into HLPAD. The database's primary use is to fulfill the mandate of the Act, and to gather statistics for regulatory activity and inspection priorities. Data included in the database include background on the carrier, background on the release, cause of the accident, and consequences. HLPAD contains nearly 2,000 records. The database has been in existence since 1985 and is updated every two to four weeks.

CHARACTERISTICS OF DATA

Source	Accident information from pipeline releases is submitted by the pipeline operators on accident report forms and filed at the Office of Pipeline Safety. (See Appendix A for a copy of the report form). The information from the accident report form is verified later with the pipeline operator by an Office of Pipeline Safety contractor.
scope	The database contains information on any failure in a pipeline system where there is a release of a transported commodity resulting in any of the following consequences: explosion or fire not intentionally set by the carrier; loss of 50 or more barrels of liquid; escape to the atmosphere of more than five barrels a day of liquified petroleum gas or other liquified gas; death of any person; or property damage of at least \$50,000. The death of any person is verified by contacting the operator official that completed the accident report form.

The following is a list of the types of chemicals that are reported in the database:

- | | | |
|------------------|---------------|--------------------------------|
| • alkylate | • butane | • anhydrous ammonia |
| • carbon dioxide | • condensate | • fuel oil |
| • crude oil | • diesel fuel | • fertilizer, ammonium nitrate |

HLPAD (continued)

- gasoline
- kerosene
- toluene
- xylene
- LPG
- ethane
- transmix
- propane
- jet fuel
- oil and gasoline
- turbine fuel

Data Reports are only submitted for accidents that meet the previously mentioned criteria and are under Office of Pipeline Safety (OPS) jurisdiction; therefore, not all accidents are included in the database. The information that is submitted by the operator may not be altered until it is verified by the Office of Pipeline Safety and a supplemental report is received from the operator.

Limitations

DATA ELEMENTS

The following key categories are included in HLPAD:

- time and location of accident
- origin of release of liquid or vapor
- cause of accident
- commodity spilled
- amount spilled
- result of release (i.e., explosion, fire)
- pipeline data
- corrosion information
- information on natural and human causes
- death or injury (employees, non-employees)
- total property damage

Refer to the Datafield Dictionary [Appendix B], for a complete list of data elements.

ACCESS

Availability **FOIA Requests** Requestors can solicit information from the HLPAD through Freedom of Information Act (FOIA) requests. The information can be provided in either ASCII format or hard copy. The hourly cost for the FOIA request is about \$35. Contact the FOIA Office for the Department of Transportation at (202)366-9639 for assistance with completing FOIA requests.

Federal Government Requests Personnel from federal agencies should contact the Chief Information Officer at (202)366-4569.

Published Information The Office of Pipeline Safety Annual Report contains specific release information on pipelines. To request a copy of the report, call the Transportation Safety Institute at (405)954-4643.

Conditions of Use Certain information within the database is considered confidential (e.g., names, addresses, phone numbers) and is therefore unavailable.

Data Outputs, Hardware, and Software Requirements The Hazardous Liquid Pipeline Accident Database is available electronically on floppy disk in ASCII form or on hard copy.

HELPFUL HINTS

- ▶ When contacting the OPS, the user should specify if he or she is requesting information on hazardous liquid spills, so that natural gas release information is not included in the report.
- ▶ Pipeline accident information on fire or explosion can be accessed by searching the fire and explosion fields.
- ▶ A data schema is sent to each requestor that has the database's information provided in ASCII fixed-field form. The schema explains the coding system for fields within the database.

Profile

Acronym:	IMIS
Database Name:	Integrated Management Information System
Agency Office:	Occupational Safety and Health Administration
Primary Contact:	IMIS Manager
Contact Address:	Director, Office of Management Data Systems Occupational Safety and Health Administration Room N-3661 200 Constitution Avenue N.W. Washington, D.C. 20210
Contact Phone:	(202) 219-7008

GENERAL DESCRIPTION

The Integrated Management Information System (IMIS) is an Occupational Safety and Health Administration (OSHA) database that contains records of workplace inspections conducted by OSHA. Included in these inspections are investigations of workplace incidents where there is one fatality or five or more worker hospitalizations (changed in 1993 to three worker hospitalizations). The database is a result of inspection and information gathering, covered by Section 8 of the Occupational Safety and Health Act of 1970, 29 USC 657.

The database is used primarily as a management information system to track OSHA's activities. It maintains a record of OSHA's activities at each workplace that has been inspected. Data include name and address of the worksite, employment level, results of the inspection including all standards violated, abatement dates, any penalties assessed, and air sampling results. Data are collected by state offices that operate their own OSHA programs and by federal offices that have to implement the program in states that decline the program responsibility. The federal data have been incorporated into a database since 1972, and the state data between 1982 and 1990 were incorporated into the database.

IMIS adds more than 120,000 inspection records a year, of which 4,000-5,000 are related to accidents. For accident inspections, a short description of the incident is included and information is collected relative to each worker that is injured. This information includes the extent of the injury, coded data on the nature of the injury, and any hazardous substance that may be involved, though the vast majority of incidents do not involve the release of a hazardous substance. After an incident has been reported, it takes about a month for the data to be entered into the database. Data are entered from the area offices of OSHA and downloaded daily to the national database maintained at the OSHA Headquarters.

CHARACTERISTICS OF DATA

Source	Information from all OSHA accident inspections is gathered by the OSHA compliance officer conducting the inspection. The data are inputted into the database at the area offices.
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IMIS (continued)

Scope	The reporting requirement for IMIS has changed from five to three hospitalizations in the last year. It is estimated that there are 100 incidents reported each year involving hazardous substances. Information about specific changes in the IMIS database over time can be obtained from the IMIS contact person.
Data Limitations	Before 1990, IMIS did not contain data from some states' accident inspection reporting. Most of the accidents that are reported in the database are not accidents that involve chemicals. Also, when the chemicals are reported, it is difficult to ascertain if the injury from the accident was a direct result of the chemical that is listed in the record. For example, if a maintenance person cleans the inside of a storage tank and is asphyxiated by a nitrogen-rich environment, this death is not the result of an "accidental release" of a chemical from an operation.

DATA ELEMENTS

The following key categories are included in IMIS:

- name of establishment inspected
- status of hazard
- nature of injury
- environmental factor (e.g., earthquake, chemical reaction)
- description of accident
- number of employees exposed to hazard
- information on person(s) injured
- source of injury
- event type
- hazardous substance

ACCESS

Availability OSHA Contact Line The IMIS database and information about IMIS are available by contacting the OSHA contact person. An OSHA staff person will assess the query and supply the requested information. The information in IMIS is usually free, but there may be a cost, usually under fifty dollars, if there is extensive analysis or data formatting involved.

CD-ROM OSHA is considering making the IMIS database available to the public on CD-ROM.

Published Information There is an annual report, prepared by OSHA for Congress, specific to released hazardous substances.

Conditions of Use The information in the database is not considered confidential, however, the database screens the names of the persons that have been injured.

HELPFUL HINTS

- Search the hazardous substance field to identify the less than 300 major hazardous substance releases. To further identify those records that directly relate the hazardous substance release with a consequence (e.g., death, injury), search the event type data field for fire, explosion, gas release, etc. The search could be focused on records in the petroleum and chemical industry. For the records identified through the initial screening, the requestor might have to read through each description paragraph and determine whether the consequences are linked to a hazardous substance release.

Profile

Acronym:	HSEES
Database Name:	Hazardous Substances Emergency Events Surveillance
Agency Office:	Agency for Toxic Substances and Disease Registry
Primary Contact:	HSEES Manager
Contact Address:	Agency for Toxic Substances amid Disease Registry Public Health Service Atlanta, Georgia 30333
Contact Phone:	(404) 639-6203

GENERAL DESCRIPTION

The Hazardous Substances Emergency Events Surveillance (HSEES) system is an Agency for Toxic Substances and Disease Registry (ATSDR) database that describes the release or threatened release of hazardous substances and the resulting public health consequences (e.g., death, injuries, evacuations). The primary focus is acute effects. The database was developed because ATSDR determined that the public health consequences of hazardous substance releases have not been adequately characterized by other databases. The database, implemented in 1990, is based on state-collected data. As of January 1, 1995, 14 state health departments collect data for HSEES, by documenting the total number of hazardous substance emergencies that occur within their respective states. During 1990-1992, 3,125 events were reported from participating states. The HSEES's primary purpose is to determine the distribution of hazardous substance emergencies, to identify the morbidity and mortality experienced by employees, responders, and the general public, to identify risk factors associated with the morbidity and mortality, and to establish prevention strategies.

CHARACTERISTICS OF DATA

Source Once a hazardous substance emergency has occurred within a participating state, the state agency notifies the health department within 48 hours. The state health department then collects information about the emergency on a data collection form and enters it into a dBase IV program. The data collection forms, designed by ATSDR, include information on the event, chemicals, victims, injuries, and evacuations. State health departments use a variety of data sources, such as records or personnel from state environmental protection agencies, police or fire departments, or hospitals. On a quarterly basis, the state health departments send electronic data to ATSDR.

Scope Hazardous substance emergency events are defined as uncontrolled or illegal releases or threatened releases of chemicals, or their hazardous by-products. The reportable chemicals include all hazardous substances except petroleum products.

Events are included in the database when the amount of product released needs to be removed, cleaned up, or neutralized according to federal, state, or local law; or when there is only a threatened release of one of the chemicals listed above, but this threat leads to an action (e.g., evacuation). Victims are defined as those individuals who suffer at least

one injury as a consequence of the event. HSEES includes data on hazardous substance emergencies for both transportation and fixed facility events.

Data Quality/ Limitations The information from the data collection is considered reliable because it is an active state-based system that collects data in a timely fashion. Data completeness is assessed quarterly through error-checking programs, and system sensitivity is assessed in comparison with events reported to national databases. Consistency of data reporting between states is ensured by training manuals, case studies, and a newsletter clarifying questions from participating states.

DATA ELEMENTS

The following key categories are included in the Hazardous Substances Emergency Event Surveillance:

- event identification and notification
- morbidity and mortality
- types of injuries (e.g., trauma, nausea)
- evacuation and in-place sheltering
- substance, chemical, or trade name
- exposure or potential exposure population within specified radii of the event
- demographic characteristics of victims

ACCESS

Availability The HSEES database is not intended to be directly available to the public or other interested parties. Instead, the information is available through requested searches and published results.

Federal Government Requests Personnel from Federal agencies should contact the HSEES Manager at (404) 639-6203.

Published Information There is an annual report called the Hazardous Substances Emergency Events Surveillance Annual Report. To request a copy of the report, contact the HSEES Manager at (404) 639-6203. Summaries of analyses are published periodically in journal articles. Publications include:

Hall HI, Dhara VR, Kaye WE, Price-Green, PA,, "Surveillance of Hazardous Substance Releases and Related Health Effects". ***Archives of Environmental Health***. January/February 1994, Volume 49(1); pages 45-48.

Hall HI, Dhara VR, Price-Green, PA, Kaye WE., "Surveillance for Emergency Events Involving Hazardous Substances - United States 1990-1992", MMWR. *Center for Disease Control Surveillance Summaries*. July 22, 1994, Volume 43, No. SS-2.

Short Descriptions of Additional Federal Release Information/Databases

The following databases and information sources were not featured as profiles, but they do contain certain chemical release information. They were developed to meet federal agency goals and to satisfy regulatory requirements.

1. Coast Guard Marine Safety Information System (MSIS): DOT

The Marine Safety Information System (MSIS), maintained by the United States Coast Guard, gathers information on about 12,000 fixed facilities and transportation accidents per year. Chemicals covered include petroleum, and CERCLA and non-CERCLA substances.

MSIS automates critical Coast Guard data gathering activities to provide support to overall mission performance. The data includes vessels' history, waterfront facilities, involved parties, and vessel owners and operators. The information is used to prioritize boardings to maximize use of Coast Guard resources for prevention, response, investigations, ship inspections, and pollution response.

MSIS is accessed by Coast Guard Marine Safety Offices throughout the United States, district offices, and headquarters. MSIS captures the majority of the data that the Office of Marine Safety, Security and Environmental Protection uses to carry out its missions.

2. Acute Hazardous Events (AHE) Database: EPA

The Acute Hazardous Events database, developed by EPA, provides a historical perspective on the magnitude of chemical accidents in the United States in response to the Bhopal, India disaster. The database contains about 6,200 records that represent information on roughly 11,000 incidents that occurred primarily between 1982 and 1986. Data on the events were collected from a variety of sources including the United Press International (UPI), Associated Press (AP), 26 daily newspapers, EPA Region VII office files, six offices of five state governments, and from spill reports to the National Response Center (NRC). The data collection was only intended to provide a "snapshot" of the number of chemical accidents occurring at fixed facilities and transportation, fire and explosion events, toxic releases, and the degree of deaths, injuries, evacuations and environmental damage associated with these kinds of incidents in the United States. The data is provided by secondary sources and has not been thoroughly verified. Therefore, caution should be used when interpreting certain findings.

3. Pollution Reports (POLREPS): EPA/Coast Guard

POLREPS are files and reports from follow-up removal actions of reportable quantity (RQ) events, as required by 40 CFR 300.135(m). The U.S. Coast Guard On Scene Coordinator (OSC) submits pollution reports (POLREPS) to USCG District Commanders, and to the Director, Emergency Response Division of EPA for the purpose of communicating CERCLA response and fund obligation data to EPA. POLREPS provide factual operational data relating to a release, specifically, a site description, incident description, preliminary assessment results, response activities, and project cost information. The initial POLREP will be sent within 24 hours of initiating a response action, if information is available. Once the initial report is completed, POLREPS would be sent on a routine basis (daily, or as significant developments warrant). When the Regional Response Team (RRT) is activated for a specific incident, the RRT shall submit POLREPS to the NRC in a timely manner as significant developments occur (but not later than 1600 local time on each day of operation).

4. CERCLIS: EPA

EPA's Office of Emergency and Remedial Response maintains CERCLIS, a national computerized program management and inventory system for sites reported to Superfund for potential remediation. CERCLIS contains information on all aspects of potential hazardous waste sites from initial discovery to listing on the National Priorities List (NPL). Data provided in CERCLIS include site names, geographic location, remedial actions taken or proposed under the Superfund program, and major events in site cleanup. CERCLIS operates on the EPA mainframe computer. Regional program offices and, to a limited extent, the U.S. Corps of Engineers enter new facility reporting data directly into the system and update old data periodically. CERCLIS use is restricted to EPA and other government agencies. Reports and tapes containing the site inventory and site assessment activity information are available from NTIS.

5. OSC/NRT Reports: EPA/Coast Guard

Current CERCLA regulations require the submission of OSC reports within one year of completion of removal actions, or when requested by the Regional Response Team. The original purpose of these reports was to summarize activities at the site, communicate lessons learned, discuss any problems encountered in the response, and recommend improvements that need to be shared throughout the response community. OSC reports should cover all of the topics listed at 40 CFR 300.165(b), and reference other information sources such as the administrative record, the pollution reports, the site log book, and the OSC log book. On October 22, 1993, EPA proposed in the Federal Register to delete the current requirement in §300.165 to prepare OSC reports for all responses to major discharges or releases. In revising the National Contingency Plan, EPA has recognized that OSCs have extensive responsibilities and that responding to discharges is a higher priority than drafting the OSC report. As requested by the NRT or RRT on a case-by-case basis, however, the OSC or remedial project manager (RPM) shall submit to the NRT or RRT a complete report on the removal operations and the actions taken. These new regulations went into effect in October 1994 (30 days after publication of the final rule in the Federal Register on September 15, 1994).

6. Toxic Release Inventory (TRI): EPA

The Toxic Release Inventory (TRI) is a publicly available database that contains information on routine emissions and accidental releases of specific toxic chemicals from manufacturing facilities throughout the United States. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), which Congress passed to promote planning for chemical emergencies and to provide information to the public about the presence and release of toxic and hazardous chemicals in their communities. Following passage of the Pollution Prevention Act of 1990, the TRI was expanded to include mandatory reporting of additional waste management and pollution prevention activities, and the list of substances was expanded from about 300 to nearly 600 for the 1995 reporting year. The chemical-specific and facility-specific information collected under these laws can be used by the public to identify facilities and release patterns that warrant further study and analysis. Combined with hazard and exposure information, TRI has been used for risk identification. As of 1992, the TRI included over 80,000 reports from approximately 23,000 facilities each year. However, it captures only a portion of all toxic chemical releases nationwide. Facilities that have fewer than 10 employees, do not meet chemical thresholds, or are non-manufacturers are not required to file TRI reports.

7. Occurrence Reporting and Processing System (ORPS): DOE

The Occurrence Reporting and Processing System database provides the Department of Energy (DOE) with a readily accessible database containing information about occurrences¹ at DOE facilities, causes of those occurrences, and corrective actions. This information can be used to identify and analyze trends in occurrences. The database resides on a host computer at the Idaho National Engineering Laboratory in Idaho Falls, Idaho, and can be accessed from any DOE site via computer 24 hours a day. Since September 1, 1990, approximately 6,000 to 8,000 occurrence reports have been entered annually.

8. Natural Gas Pipeline Incidents: DOT

Release information on natural gas pipelines is collected in a reporting system by DOT's Office of Pipeline Safety. This system contains the number of natural gas pipeline fatalities, injuries, dollar amount of property damage, location and time of incident, cause, and where/what part of the system failed. The database contains over 2,400 records since data was collected in 1984.

9. National Fire Incident Reporting System/FEMA (NFIRS): USFA

The National Fire Incident Reporting System (NFIRS), maintained by the U.S. Fire Administration (USFA), is a data collection system with information on fires. NFIRS gathers data from 41 states. In 1990, data on hazardous materials incidents began to be collected in the NFIRS System. In the first year, information was collected from only five or six states and approximately 85 incidents were recorded. The first full year that data were collected using this system was 1991; however, only a small number of states were involved. In 1992, states representing approximately 210 fire departments were supplying data. For the first half of 1992, over 600 hazardous materials incidents were reported. Among the data fields used in this system are the type of site (fixed or transportation), the chemical involved, and the injuries and deaths resulting from the incident. NFIRS has been used to analyze factors involved in fire incidents and, in some cases, has brought about changes leading to increased safety.

¹ Under DOE Order 5000.3A, occurrences are defined as all events or conditions that could: (1) affect the health and safety of the public; (2) seriously impact the intended purpose of DOE facilities; (3) have a noticeable adverse effect on the environment; or (4) endanger the health and safety of workers. Occurrences are categorized by their seriousness to ensure the more serious occurrences are highlighted to management. The categories are defined in DOE Order 5000.3A.

IV. QUICK CROSS REFERENCE TO DATABASES

Quick cross references to the federal accident release databases enable the user to compare databases and determine which ones provide relevant information. While a detailed description of each database is valuable, users should review cross references and summary data. Such review is especially useful if users are unsure which database will meet his or her needs or if users want a quick comparison of the information in the databases. The following four exhibits in this section serve as cross references:

- **Exhibit 4:** Quick reference on scope of databases
- **Exhibit 5:** Comparison of data elements in databases
- **Exhibit 6:** Specific database information contained in each data element
- **Exhibit 7:** Top five chemicals or substances (non-petroleum) found in each database

Users who are largely unfamiliar with the databases may need to start with **Exhibit 4** to decide which databases are most appropriate for their analyses. Users may wish to consult **Exhibits 5, 6, and 7** to further match a database to their specific informational demands. Users who already have a detailed list of informational requirements may wish to start with **Exhibits 5 and 6**.

Exhibit 4 briefly reviews the scope of each of the seven federal accident release databases and includes such information as the government agency providing the database, chemicals covered, number of records, and selection criteria. The exhibit also comments on data limitations and quality issues such as the degree of verification, whether the information is based on notifications, and whether there are missing data. From the exhibit, the user can gain a quick comparison of and “feel for” the databases and can screen the databases for the general types of releases included.

Exhibit 5 provides a comparison of the data elements in the seven databases. Data elements (e.g., date of release, primary release cause) are grouped into seven broader data categories: event reporting information, facility/release location, release information, release cause, damages, cleanup action, and general remarks. A check mark indicates if a data element is addressed in a particular database, though data elements may not be in the same format (e.g., coded, text). Users will benefit most from this exhibit once they have already defined the types of data elements to be included in their information request or analysis. Also, a reference page number is provided for each data element that refers the user to more detailed information in **Exhibit 6**.

Exhibit 6 includes a description of the types of database information contained within each data element of the databases. This exhibit is helpful when the user’s proposed data search or analysis demands a close look at the way the database covers specific types of information under each data element. For example, if the analysis requires the distinction between employee injuries and public injuries, the user should consult this exhibit to identify databases that make this distinction.

Exhibit 7 lists the five most frequently reported chemicals or substances (non-petroleum) in each database. The chemicals that are reported are indicated with a check mark. Users will find this exhibit helpful in attempting to determine which databases have the most information on particular chemicals (e.g., ammonia).

EXHIBIT 4
QUICK REFERENCE: SCOPE OF DATABASES

DATABASE SCOPE	FEDERAL DATABASE						
	IRIS	ERNS	ARIP	HMIRS	HLPAD	IMIS	HSEES
<i>Government agency</i>	NRC	EPA	EPA	DOT	DOT	OSHA	ATSDR
<i>Chemicals covered</i>	CERCLA hazardous substances, oil products, and other substances	CERCLA hazardous substances, oil products, and other substances	CERCLA and EPCRA listed chemicals	FHMTL chemicals; also CERCLA hazardous substances, petroleum, explosives, pesticides, others	20 chemicals covered as petroleum and toxic products	All hazardous substances, liquids, dust particles, petroleum products, gases, flammable liquids	All hazardous substances except petroleum products
<i>Industries covered</i>	All	All	All	Hazardous materials carriers and shippers	Pipeline carriers of hazardous liquids	All	All
<i>Transportation - related?</i>	Yes	Yes	No	Yes	Yes	Possible	Yes
<i>Fixed facility-related?</i>	Yes	Yes	Yes	No	No	Possible	Yes
<i>Number of records</i>	~33,000 per year/330,000 since 1982	-42,000 per year/-300,000 since 1986	-4,800	15,000 reports per year/-220,000 total	-200 per year/-2,000 total	-120,000 inspections per year	3,125 records from 1990-92

EXHIBIT 4 (continued)
QUICK REFERENCE: SCOPE OF DATABASES

DATABASE SCOPE							
	IRIS	ERNS	ARIP	HMIRS	HLPAD	IMIS	HSEES
<i>Criteria for selecting releases</i>	1) Release above reportable quantity (RQ); 2) oil release violates water standards, causes a film, sheen, or sludge; 3) other chemical release meets HMTA or pipeline safety criteria	1) CERCLA release above reportable quantity (RQ); 2) oil release violates water standards, causes a film, sheen, or sludge; 3) other chemical release meets HMTA or pipeline safety criteria	Subset of ERNS releases and meets one of four ARIP criteria: 1) causes death/injury; 2) multiple of RQ; 3) repeat release; 4) EHS	Any unintentional release of hazardous material during the course of transportation	Explosion/fire, or loss of 50 or more barrels of liquid, or release of more than five barrels per day of liquified gas, or death, or property damage of at least \$50,000	No release trigger, incidents selected if involves 3 injuries requiring hospitalization	All hazardous substance releases except petroleum products occurring in the participating states are included
<i>Limitations/Quality:</i>							
1) <i>Information Verified?</i>	Some	Most not	Y e s	Yes	Yes	Yes	Yes
2) <i>Notification Information?</i>	Yes	Yes	No	Yes with follow-up	Yes with follow-up	Yes with follow-up	Largely not
3) <i>Missing data?</i>	Yes	Yes	No	Yes	No	No	No
4) <i>Comment</i>	Impacts may not be related to chemical release; some inaccuracies because data source is only initial notification	Impacts may not be related to chemical release; some inaccuracies because data source is only initial notification	Only most severe accidents; criteria and ARIP questionnaire has changed over time, therefore, not all data are consistent or comparable	Sometimes chemical information provided as category (e.g., flammables) rather than individual chemical name	Not all liquid pipeline accidents are reported in database	Injuries or deaths may not be related to chemical release	Current information in database is collected from 14 state health departments
<i>Years collected</i>	1974 - present	1986 - present	1986 - present	1971 - present	1985 - present	1972 - present	1990 - present

EXHIBIT 5
COMPARISON OF DATA ELEMENTS IN FEDERAL HAZARDOUS SUBSTANCE RELEASE DATABASES

DATA CATEGORY	DATA ELEMENT	FEDERAL DATABASES							REFERENCE PAGE FOR MORE INFO.
		IRIS	ERNS	ARIP	HMIRS	HLPAD	IMIS	HSEES	
<i>Event reporting information</i>	<i>Reporting party</i>	✓	✓	✓	✓	✓	✓		47
	<i>Date and time reported</i>	✓	✓		✓	✓	✓		47
<i>Facility/release location</i>	<i>Facility name and address</i>	✓	✓	✓	✓	✓	✓		48
	<i>Release location</i>	✓	✓	✓	✓	✓	✓		48
<i>Release information</i>	<i>Date and time of release</i>	✓	✓	✓	✓	✓	✓	✓	49
	<i>Transportation release</i>	✓	✓		✓	✓		✓	49
	<i>Facility release</i>	✓	✓	✓			✓	✓	49
	<i>Substance involved</i>	✓	✓	✓	✓	✓	✓	✓	49
	<i>Quantity/concentration</i>	✓	✓	✓	✓	✓			49
	<i>Affected medium</i>	✓	✓	✓					50
	<i>End result/type of release</i>			✓	✓	✓	✓		50
<i>Release cause</i>	<i>Primary cause</i>	✓	✓	✓	✓	✓	✓	✓	51
	<i>Secondary cause</i>			✓					51
	<i>Packaging/equipment information</i>	✓	✓	✓	✓	✓	✓		51

EXHIBIT 5 (continued)
COMPARISON OF DATA ELEMENTS IN FEDERAL HAZARDOUS SUBSTANCE RELEASE DATABASES

DATA CATEGORY	DATA ELEMENT	FEDERAL DATABASES							REFERENCE PAGE FOR MORE INFO.
		IRIS	ERNS	ARIP	HMIRS	HLPAD	IMIS	HSEES	
<i>Damages</i>	<i>Deaths</i>	✓	✓	✓	✓	✓	✓	✓	52
	<i>Injuries</i>	✓	✓	✓	✓	✓	✓	✓	52
	<i>Evacuation</i>	✓	✓	✓	✓			✓	52
	<i>Property damage</i>	✓	✓	✓	✓	✓			52
	<i>Environmental damage</i>		✓	✓	✓				52
<i>Cleanup action</i>	<i>Stabilization and control measures</i>	✓	✓	✓					53
	<i>Notification</i>	✓	✓	✓	✓	✓			53
	<i>Prevention/repairs</i>	✓	✓	✓		✓			53
<i>General remarks</i>	<i>General remarks</i>	✓	✓		✓		✓		53

EXHIBIT 6
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: EVENT REPORTING INFORMATION		
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION
<i>Reporting party</i>	IRIS	Individual/company, address
	ERNS	Individual/company, address
	ARIP	Questionnaire respondent
	HMIRS	Individual/company, address
	HLPAD	Operator information
	IMIS	Accident compliance officer
	HSEES	
<i>Date and time reported</i>	IRIS	Date, time
	ERNS	Date, time
	ARIP	
	HMIRS	Date, time
	HLPAD	Date, time
	IMIS	Date
	HSEES	

EXHIBIT 6 (continued)
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: FACILITY/RELEASE LOCATION		
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION
<i>Facility name and address</i>	IRIS	Company, address, city, county, state
	ERNS	Company, address, city, county, state, Dunn and Bradstreet number
	ARIP	Facility name, facility address, owner name, owner address, Dunn and Bradstreet number
	HMIRS	Carrier, address, city, state
	HLPAD	Company name
	IMIS	Facility name, address, city, state
	HSEES	
<i>Release location</i>	IRIS	Spill location, city, county, region
	ERNS	Spill location, city, county, region, longitude/latitude, address in comment field
	ARIP	Location of release within facility, longitude/latitude
	HMIRS	Location of incident (city, county, state, route)
	HLPAD	Spill location (city, county, state, offshore coordinates)
	IMIS	Same as facility name and address
	HSEES	

EXHIBIT 6 (continued)
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: RELEASE INFORMATION		
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION
Date and time of release	IRIS	Date, time
	ERNS	Date, time
	ARIP	Date, time release occurred; date, time release ceased
	HMIRS	Date, time
	HLPAD	Date, time
	IMIS	Sometimes provided in general comment field
	HSEES	Date, time
Transportation release	IRIS	Transportation mode, vessel/vehicle number
	ERNS	Transportation mode, vehicle number, indicates if release caused by transportation accident
	ARIP	
	HMIRS	Mode of transport, shipment information, type of vehicle
	HLPAD	Year equipment installed, above/below ground pipeline
	IMIS	
	HSEES	Indicates transportation release
Facility operations and release	IRIS	Capacity of facility
	ERNS	Capacity of facility, indicates if fixed facility release
	ARIP	Year operations began, SIC code, primary product, status of operations at time of release, current status of operations
	HMIRS	
	HLPAD	
	IMIS	Sometimes provided in comment field: SIC code, facility violations
	HSEES	Indicates fixed facility release
Substance involved	IRIS	CHRIS code, material name
	ERNS	CHRIS code, material name, CAS number
	ARIP	Chemical name, CAS number, physical state
	HMIRS	Shipping name, trade name, hazard class
	HLPAD	Commodity spilled
	IMIS	Hazardous substance code
	HSEES	Chemicals (grouped by categories)-- can record several chemicals per release

EXHIBIT 6 (continued)
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: RELEASE INFORMATION		
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION
Quantity/concentration	IRIS	Quantity, quantity in water, units
	ERNS	Quantity, quantity in water, units
	ARIP	Quantity, units, concentration, method/source of information
	HMIRS	Quantity, units
	HLPAD	Amount spilled in barrels
	IMIS	
	HSEES	
Affected medium	IRIS	Medium type (air, groundwater, land, water), waterway affected
	ERNS	Medium (air, groundwater, land, water, within facility, codes for specific water/land body affected (e.g., canal), name of waterway)
	ARIP	Quantity released to each media (air, water, land, treatment facility), unit, method/source of information
	HMIRS	
	HLPAD	
	IMIS	
	HSEES	
End result/type of release	IRIS	
	ERNS	
	ARIP	Spill, vapor release, fire, explosion, etc.
	HMIRS	Spill, vapor release, fire, explosion, etc.
	HLPAD	Fire, explosion
	IMIS	Some information in source of injury codes (fire, pressure)
	HSEES	

EXHIBIT 6 (continued)
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: RELEASE CAUSE		
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION
Primary cause	IRIS	Transportation accident, equipment failure, operator error, etc.; description of cause
	ERNS	Transportation accident, equipment failure, operator error, etc.
	ARIP	Equipment failure, operator error. unset condition. etc.
	HMIRS	General cause
	HLPAD	Corrosion. failed weld, operator error. etc.
	IMIS	Human and environmental (e.g., earthquakes) factor codes
	HSEES	
Secondary cause	IRIS	
	ERNS	Recently added 50 secondary cause codes
	ARIP	Same as for primary cause
	HMIRS	
	HLPAD	
	IMIS	
	HSEES	
Packaging/equipment information	IRIS	Container type
	ERNS	Container type, source of release
	ARIP	Condition of releasing equipment at time of release
	HMIRS	Nature of packaging failure, packaging information
	HLPAD	Place of release (e.g., valve, tank), system involved (line pump, tank farm), pipe tests
	IMIS	Sometimes provided in comment field
	HSEES	

EXHIBIT 6 (continued)
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: DAMAGES			II
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION	
Deaths	IRIS	Number, sometimes additional information in comment field	
	ERNS	Number, sometimes additional information in comment field	
	ARIP	Yes/no; number among facility employees, general public, contractor, responder	
	HMIRS	Number	
	HLPAD	Number of total deaths, employee deaths, non-employee deaths	
	IMIS	Information on person(s) killed	
	HSEES	Deaths of employees, responders, public; age and gender profile	
Injuries	IRIS	Number, sometimes additional information in comment field	
	ERNS	Number, sometimes additional information in comment field	
	ARIP	Number injured and number hospitalized among facility employees, general public, contractor, responder	
	HMIRS	Number of minor and major injuries	
	HLPAD	Number of total injuries, employee injuries, non-employee injuries	
	IMIS	Hospitalized, non-hospitalized, type (bum), body part injured	
	HSEES	Number and type of injuries (trauma) for employees, responders, public; age and gender profile	
Evacuation	IRIS	Yes/no, number evacuated, sometimes additional information in comment field	
	ERNS	Yes/no, number evacuated, sometimes additional information in comment field	
	ARIP	Number of facility employees, public, contractors, responders evacuated or sheltered; date and time	
	HMIRS	Number evacuated	
	HLPAD		
	IMIS		
	HSEES	Evacuation and in-place sheltering	
Property damage	IRIS	Yes/no, dollar amount, sometimes additional information in comment field	
	ERNS	Yes/no; dollar amount, sometimes additional information in comment field	
	ARIP	Recently added facility costs, public costs	
	HMIRS	Dollar estimate	
	HLPAD	Dollar estimate	
	IMIS		
	HSEES		
Environmental damage	IRIS	Air pollution, sewage, water quality, sometimes additional information in comment field	
	ERNS	Release threat (drinking water contamination, ecological damage, soil contamination, wetlands contamination, etc.), sometimes additional information in comment field	
	ARIP	Yes/no (fishkills, vegetation damage, groundwater contamination, etc.)	
	HMIRS	Yes/no	
	HLPAD		
	IMIS	Contributing environmental factors	
	HSEES		

EXHIBIT 6 (continued)
DATABASE INFORMATION CONTAINED IN EACH DATA ELEMENT

DATA CATEGORY: CLEANUP ACTION		
DATA ELEMENT	FEDERAL DATABASES	DATABASE INFORMATION
Stabilization and control measures	IRIS	Description
	ERNS	Description
	ARIP	Yes/no cleanup, party responsible, date cleanup ceased, completion date, immediate response activities
	HMIRS	
	HLPAD	
	IMIS	
	HSEES	
Notification	IRIS	Notification of federal (e.g., OSHA, FEMA, DOD, EPA) and state authorities, caller notifications
	ERNS	Notification of federal (e.g., OSHA, FEMA, DOD, EPA) and state authorities, caller notifications
	ARIP	Notification of federal, state, and local authorities, general public; time; persons
	HMIRS	Organizations contacted, caller notifications
	HLPAD	Telephone report, time
	IMIS	
	HSEES	
Prevention/repairs	IRIS	Actions taken to correct or mitigate incident (comment field)
	ERNS	Actions taken to correct or mitigate incident (comment field)
	ARIP	Prevention practices and policies when release occurred, equipment repairs and/or replacements, preventive measures, hazard evaluations, training
	HMIRS	
	HLPAD	Existence of damage prevention program
	IMIS	
	HSEES	Use of personal protection equipment

DATA CATEGORY: GENERAL REMARKS		
DATA ELEMENT		DATABASE INFORMATION
General remarks	IRIS	Miscellaneous information
	ERNS	Miscellaneous information
	ARIP	
	HMIRS	Miscellaneous information
	HLPAD	
	IMIS	Summary of incident
	HSEES	

EXHIBIT 7
TOP FIVE CHEMICALS OR SUBSTANCES (NON-PETROLEUM) IN EACH FEDERAL ACCIDENTAL RELEASE DATABASE

CHEMICAL/ SUBSTANCE	FEDERAL DATABASES						
	IRIS	ERNS	ARIP	HMIRS	HLPAD ¹	IMIS	HSEES
<i>Acids</i>						✓	✓
<i>Ammonia</i>	✓	✓	✓		✓	✓	✓
<i>Ammonium nitrate fertilizer</i>					✓		
<i>Carbon dioxide</i>					✓		
<i>Chlorine</i>	✓	✓	✓			✓	
<i>Compound cleaning liquid corrosive</i>				✓			
<i>Corrosive liquid nos</i>				✓			
<i>Ethylene glycol</i>	✓	✓					
<i>Flammable liquid nos</i>				✓			
<i>Herbicides</i>							✓
<i>Hydrogen sulfide</i>			✓			✓	
<i>Metals</i>							✓
<i>Methylene chloride</i>						✓	
<i>Polychlorinated Biphenyls</i>	✓	✓					
<i>Resin solution</i>				✓			
<i>Sulfur dioxide</i>			✓				
<i>Sulfuric acid</i>	✓	✓	✓	✓		✓	
<i>Volatile organic compounds</i>					✓		✓

Note: Data based on cumulative reports for IRIS, ERNS, ARIP, IMIS, and HSEES, and on 1993 reports for HMIRS.

¹HLPAD contains primarily petroleum-related data; four chemicals are reported in the database.

V. LOOKING TO THE FUTURE - LINKING DATABASES

Most analyses of accidental releases are addressed within the scope of a single database. Although within the family of federal accidental release databases considerably larger numbers of incidents can be found and in most cases more extensive and accurate information on incidents exist, few users have ever searched using more than a single database. This is because it is difficult and cumbersome to link an incident from one database to the same incident in another database since most federal accidental release databases lack comparability. Given the importance of the information that has been collected and the value of being able to assemble this information and gain a better understanding of various accidental releases as well as a more complete national (as well as regional, state or local) picture of the types of releases that are taking place, this chapter begins to address the issue of database linkages by discussing the value of linking the databases, general approaches for performing various types of linkages, and future opportunities for conducting comprehensive searches on linked databases.

Value of Linking Databases

Many users of this guide, including federal, state, and local officials, industry, environmental groups, and the public, are interested in conducting comprehensive searches and analyses that span several different databases. Described below are ways that linked databases can benefit such users,

Support Public Policy and Regulatory Analyses and Decisions. A comprehensive analysis of the “accident problem” by examining multiple accident databases may be necessary for certain policy and regulatory decisions. The absence of comparable databases slows any analyses of accident data and limits the information available for public policy analyses and decisions. Policy issues and regulatory analyses whose scope extends beyond one or two databases are candidates for database linkage. Efforts to link databases are time-consuming and require careful planning. If such linkages were already established, more thorough comprehensive analyses could be applied to public policy decisions.

Enhance Enforcement/Inspection/Accident Investigation. Easy access to linked databases may help federal and state officials set priority for enforcement and inspections of facilities. Linked data may also directly point to a lack of compliance in reporting. For example, HMIRS is periodically linked to the railroad and highway accident databases to compare records and to identify incidents that should have been reported to HMIRS by the carrier or responsible party. The linked information may also provide additional background for the facility visit/accident investigation and may point to certain problems and potential release prevention measures.

Support Special Studies. Special studies such as the Report to Congress on Hydrogen Fluoride would have benefitted from comparable federal accidental release databases. The Hydrogen Fluoride (HF) study examined separately the ARIP, HMIRS, and ERNS databases. Conclusions about HF releases were provided for each database. In addition, a linked database was necessary to provide a few overall findings. Combining the databases for this specific study proved a time-consuming, costly, and difficult task.

Support Coordination of Accident Analyses among Government Agencies. Promoting comparable databases would encourage coordination among government agencies. Agencies might share insights, skills, and accident analyses. For example, regular meetings of an existing multi-federal agency accident work group provides a forum for the agency representatives who maintain the accident databases to learn and discuss database coordination issues. Other forums to encourage database coordination include conferences, regular meetings through the National Response Team, an interagency task force, and newsletters.

Enhance International Cooperation. International cooperation and information exchange is becoming increasingly important with growing concerns about hazardous substance use, past catastrophic accidental releases, and the potential for cross-border accidents. Information exchange on releases of hazardous substance incidents can build trust and international support to prepare for, prevent, and respond to such incidents. Coordination of accidental release databases in the United States could provide important, comprehensive information and analyses to be shared with other countries. For example, as a delegate to the Group of Experts on Chemical Accidents sponsored by the Organization for Economic Cooperation and Development (OECD), the United States and other countries have agreed to complete an accident form if an incident meets certain criteria. To decide if the incident meets the criteria and to complete the form, the U.S. will need to rely on several different databases. Linked databases that are updated periodically can provide a centralized resource for one federal agency to complete the accident form efficiently within the required two week period after a major release event.

Linking Databases

What is meant by linking databases? Linking can mean several different things. It could mean that connections or bridges are established among the databases through common release identifiers (e.g., release date, facility name) to enable the user to access various database information on a particular incident. This linkage basically establishes a pointer system which allows quick identification of release information in the individual databases, but preserves the integrity of each. For example, a linkage would enable a user to search for a release on October 1, 1992 at Facility X in any of the databases and access particular release information contained in each database. This linkage is valuable if specific release information, not aggregate analysis, is desired.

Linking can also refer to the combination of several databases into one. A combined database enables more comprehensive aggregate analysis but leaves data gaps (because different information is contained in different databases). Such a linkage also requires difficult choices when discrepancies in information exist among databases to be combined. Decisions must also be made about whether an information category in one database (e.g., release quantity to water) is truly the same category of information in another database (e.g., release quantity to navigable waterway).

A third kind of linkage could result in a smaller scale combined database. This linkage would combine only data elements (information types) that are common to most databases. The purpose is to increase the number of release records available (after eliminating duplicates) for the analysis without including unique information from individual databases (e.g., environmental damage) that would complicate a linkage. This linkage eliminates data gaps and enables core aggregate analysis (e.g., number of releases per year in the U.S.) to be conducted.

One possible use of a smaller scale combined database would be to perform an analysis on a specific chemical. For example, selected data elements on hydrogen chloride releases in ARIP could be directly appended to the hydrogen chloride data elements from HMIRS because the databases have different scopes (e.g., ARIP covers fixed facility and HMIRS covers transportation releases). Then, the common data elements "number of major/hospitalized injuries" and "quantity released" could be analyzed to determine, for example, the relationship between release size of hydrogen chloride and number of injuries. Even with this relatively simple linkage and analysis, there is at least one issue to resolve. The ARIP database has separate data elements that pertain to hospitalization of facility employees, contractors, responders, and the public. The numbers will have to be totalled and placed in a new data element which can then be appended to the HMIRS data element on the "number of major/hospitalized injuries".

Basis of the Linkage - Common Data Elements

Data elements refer to the **specific type** of information contained in the database. Examples include time and date of release, substance and quantity released, and number of injuries. A requirement for performing any of the above database linkages is to identify key common data elements which can be used to establish linkages. Data elements in one database are common to data elements in another database if the information contained in them is similar. For example, “release quantity” from one database could be considered common to “spilled quantity” in another database. However, the precise definition of the data elements, which often differs among databases, should be acquired and evaluated before data elements are considered common.

Common data elements do not mean that the data are always directly comparable. For example, release quantities may still be common even though one database may list the release quantity in pounds and the other database lists it in gallons. Also, “chemical released” is considered a common data element though one database may provide the information as a formal name and another may list it as a CAS number. In addition, common data elements usually have different computer formats for the information (e.g., field width, field type as character or numeric). Differences such as those listed above can be adjusted for consistency.

A side-by-side comparison was performed of the seven federal accidental release databases featured in this user’s guide to identify common data elements. The data elements that are common to at least five of these databases include:

- | | |
|----------------------------------|--|
| ▶ Facility name/address | ▶ Packaging/equipment information |
| ▶ Release quantity/concentration | ▶ Number of deaths |
| ▶ Chemical released | ▶ Number of injuries |
| ▶ Release state | ▶ Number of evacuees |
| ▶ Release city | ▶ Reporting party |
| ▶ Time/date of release | ▶ Property damage |
| ▶ Primary cause | ▶ Type of release (transportation, facility) |
| ▶ NRC number | |

Although the data elements are common, the precise way the information is expressed and the computer format may differ from database to database.

Most common data elements are not useful for linking databases because they are not release specific (e.g., chemical name) or do not contain easily matched information (e.g., release quantity). There are only a few data elements that are common to most databases and could potentially link databases by matching release records. These data elements include release date, facility name, and release state, city, and NRC number. The advantages and disadvantages of using these data elements are considered below.

Release date, facility name, release city, release state. Release date can be used with facility or other release-specific information to match release records from one database with release records from another database. However, these common elements-- release date, facility name, release city, release state-- are not without foreseeable problems. **Exhibit 7** lists the different formats of these data elements and indicates the need to standardize these formats for field type (e.g., text, numbers, date) and field width. Most databases contain release date in a consistent format (month/day&year), but some reports have an uncertain date. The facility name is subject to misspelling, varied versions, or confusion with the name of the parent company. The release city can be subject to misspellings and misinterpretation. The release state is the most consistently accurate, as all databases use the two letter abbreviation. Several format

widths were changed in the ARIP database to be consistent with the format widths for most of the other databases. These changes in the ARIP database are already reflected in Exhibit 7.

EXHIBIT 7 COMPUTER FORMATS FOR KEY COMMON DATA ELEMENTS

Agency	Data-base	Common Data Elements									
		Release Date		Facility Name		Release City		Release State		NRC Number	
		Type	Width	Type	Width	Type	Width	Type	Width	Type	Width
NRC	IRIS	date	1 0	text	30	text	20	text	2	num	6
EPA	ERNS	date	1 0	text	30	text	2 0	text	2	num	6
EPA	ARIP	date	1 0	text	30	text	25	text	2	num	6
DOT	HMIRS	date	10	text	30	text	25	text	2	num	6
DOT	HLPAD	date	10	text	50	text	25	text	2	num	6
OSHA	IMIS	text	>200	text	-	num	4	text	2	-	-

The following databases provide additional blank spaces over and above the six digits currently needed to accommodate the NRC number: IRIS (1 additional space), ERNS and HMIRS and HLPAD (6 additional spaces).

National Response Center Identification Number. Another suggestion is to use a single identification number that can refer to one release or notification in all of the federal accident databases. Because five of the seven databases (i.e., IRIS, ERNS, ARIP, HMIRS, and HLPAD) featured in this guide originate with the National Response Center's (NRC) database (IRIS), perhaps an NRC identification number can eventually be assigned to the databases to link them. When the NRC receives a call concerning a release, the call is given a six digit NRC number. This number is already associated with ERNS, HMIRS, ARIP, and HLPAD.

However, several problems accompany this approach. First, the NRC identification numbers pertain to notification reports to the NRC, not to actual releases. Also, multiple notifications about a single release create several different NRC numbers. According to the NRC, around 20 percent of NRC records are estimated to be duplicates of individual releases. This duplication creates a problem if matching the databases are based on a release. Also, for such a matching system to work, federal agencies would have to take responsibility for including the NRC identification number in their databases, HMIRS and HLPAD database managers do not include the NRC number in their databases, but they could retrieve it. However, only a small number of incidents in HMIRS and HLPAD require reporting to the NRC and have NRC numbers.

Efforts to Support Database Linkage

In addition to efforts by individual federal agencies to place databases (e.g., ERNS, ARIP) on electronic bulletin boards, the NRT has outlined and is considering a pilot project to link databases to determine the utility of database linkage.

The NRT is considering a pilot project to produce a publication of summary statistics on accidents in the United States. The publication would be based on a synthesis of a year's worth of data (e.g., 1994)

from all of the databases featured in this user's guide. The intention is to develop a "snap shot" of the release data for a national picture. The effort would include merging fifteen or fewer common data elements (listed on page 59) into a single combined database so that aggregate analysis could be performed. The procedures to link the data would also be documented. The entire effort to produce a "temporary working database" might demand significant resources to conduct and document the linkage of databases and therefore, might only be performed once. Because many of the databases are huge, the NRT may consider a scaled-down effort by perhaps limiting the number of merged release records to a subset - those that meet a release quantity threshold (e.g., **≥ 100 gallons**), **impact trigger** (e.g., **causes death, injury, environmental damage**), or some other screening criterion. Much of the resources for a second version and a follow-up publication on the accident picture would be borne in the first year because the procedure to link the databases and the database structure would have already been established and the initial problems would have been resolved.

In an additional optional effort, the NRT could compare the temporary working database to accidental release data from up to three select states. This data would be compared for accuracy and completeness against the nationally collected data. The merging of state data with the accidental release data collected nationally could add depth to the accident picture for the state(s) involved. Additional publications could feature comprehensive summary statistics on selected states or comparison of state accidental release pictures.

The NRT would assess the costs of and response to the publication on the accidental release picture to determine if annual updates of the publication or release of the raw data are warranted. The publications that feature statistics on national and state-enhanced data could be available through some agreed upon mechanism (e.g., NTIS, electronic bulletin boards).

Further study of the benefits, the technical complications, and the resource requirements of this pilot project is necessary before the NRT can proceed.